# ENGINEERING NEWS-RECORD

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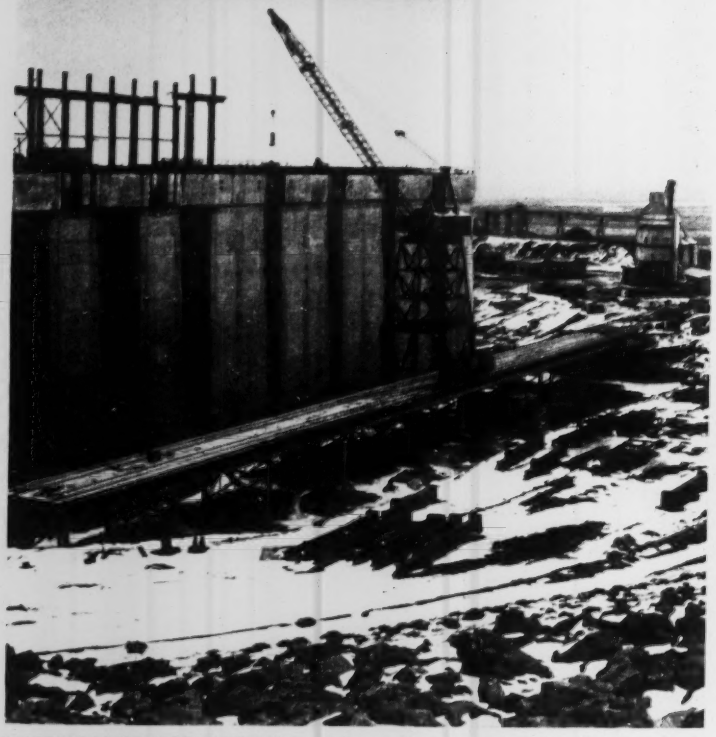
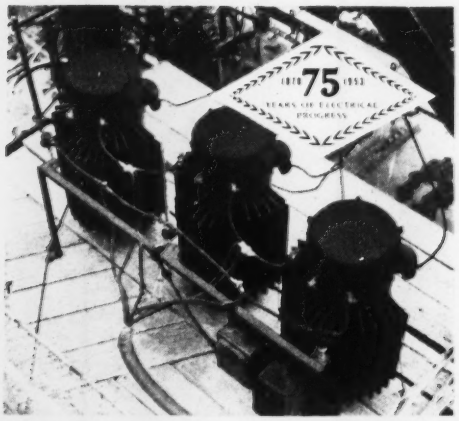
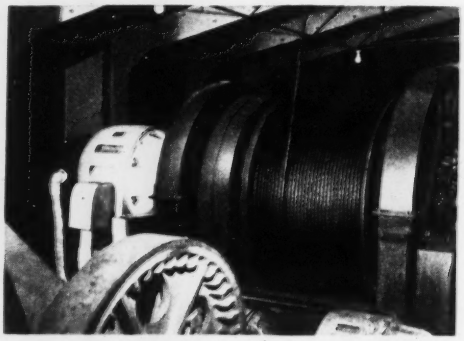


**ELECTRICAL CO-ORDINATION** provides continuous operation of this revolver crane 100 feet above the base of the huge intake structure. Movement along trestle is powered by a G-E 200-hp Type MR motor at foot of the gantry.




**ADEQUATE POWER** to maintain smooth, dependable crane performance is stepped down by these portable G-E transformers.



**RELIABLE DRIVES** must stand exacting demands of this revolver crane. G-E 200-hp motors and control are key to this application.

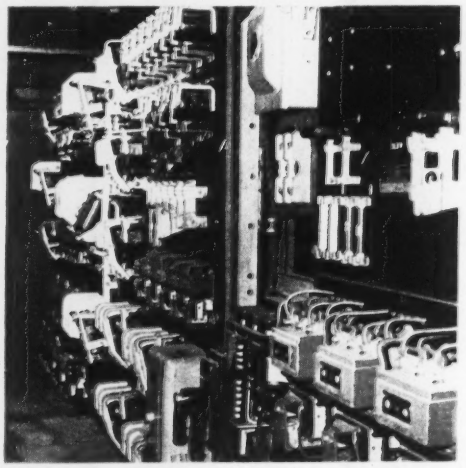
# Electricity helps Garrison Dam keep round-the-clock schedule

## G-E drives, still on the job after six years, are helping to harness Missouri River

At Garrison Dam near Bismarck, N. D., completely electrified equipment plays a vital role in keeping round-the-clock construction work on schedule. All electrical systems for the project's main stages were designed and co-ordinated by U. S. engineers, Peter Kiewit and Son Co., and Morrison-Knudsen Co. contractors—aided by G-E application engineering. This engineering teamwork resulted in maximum working capacity and fast, smooth operation.

Let G-E application engineers help *you* get the most from your construction equipment through electrification—from the smallest drive to the largest power distribution system. Contact your nearest G-E Apparatus Sales Office. General Electric Co., Schenectady 5, New York.

664-31



**CENTRALIZED CONTROL** equipment on this compact G-E panel is mounted in the cab for simple one-man operation.

**Engineered Electrical Systems for Heavy Construction**

**GENERAL ELECTRIC**

This penstock, built of Mayari R, has an inside diameter of 30 in. at the upper end and 25½ in. at the discharge end. Wall thickness ranged from 7/16 in. to 1-3/16 in.

# Weight of Penstock in Chile Cut 30% with Mayari R

## *On-Job Handling Simplified, Field Welding Greatly Reduced*

The penstock for the Central Los Molles hydro-electric project in Chile, S. A., was designed to take advantage of the high yield point of Mayari R. Using this low-alloy, high-strength steel the designers were able to reduce the overall weight of the 7880-ft pipe by approximately 386 tons. This 30 pct reduction in weight not only cut shipping costs, but also simplified the job of handling the pipe on location.

The use of Mayari R brought other important advantages, too. The thinner walls of Mayari R pipe required considerably less welding in the field. And, when handling weights were limited, longer lengths could be shipped, requiring fewer girth seams.

Additional information about high-strength, weight-saving Mayari R and its use in penstocks, large fabricated pipe, and similar applications, is readily available through any Bethlehem sales office.

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# ENGINEERING NEWS-RECORD

ABP Member

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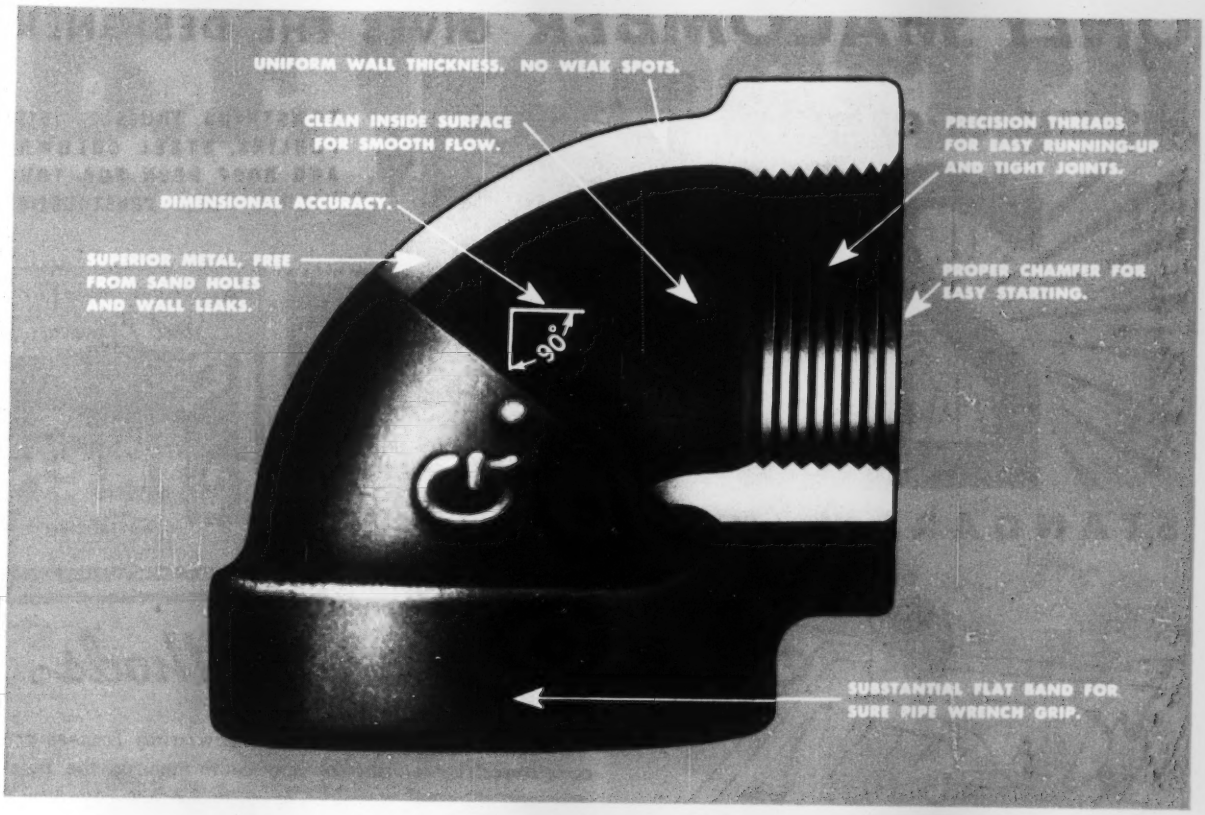
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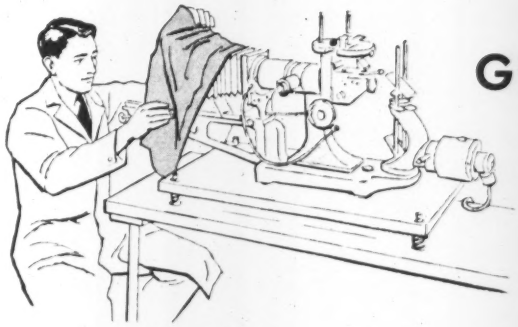
# Rigid Inspection

## From foundry to finished fitting—modern inspection methods insure the quality of

## GRINNELL PIPE FITTINGS



*The "Photomicrograph"*
*By means of photomicrographs, the metal structure of castings is thoroughly checked for full information on production quality.*

For instance, for malleable fittings, laboratory technicians make an hourly chemical analysis of foundry metal to insure uniform, high quality. Daily tests by photomicrograph reveal metallurgical structures. Sample bars from each melt are subjected to tensile strength tests . . .

Fittings must pass a 100% inspection both before and after machining. Quality control includes alignment tests, high pressure hydrostatic tests, and comparator checks on the accuracy of threads and chamfer.

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- High quality metal
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- Proper chamfer for easy starting and protection of first thread
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To make fittings the safest, strongest link in your piping system . . . choose from the wide Grinnell line. Available from your local Grinnell Distributor or a Grinnell Warehouse.

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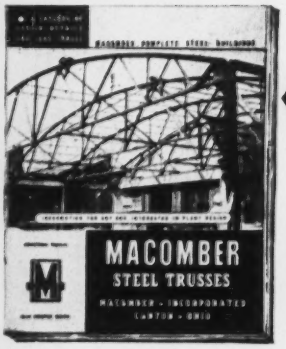


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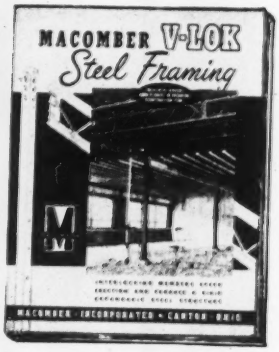

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# B.F.Goodrich

## Off-the-road tires carry 30 tons 4,500 hours a year

THE trucks of the Penn Dixie Cement Corporation, Nazareth, Pa., roll over a rock-strewn quarry floor, then back up a steep incline to dump their load of rock. This rugged hauling job goes on more than 80 hours a week—with 15 tons of rock plus a truck weight of 15 tons for the tires to carry.

For such punishing work, the company uses B. F. Goodrich tires exclusively. The report: these tires stand up so well they can be recapped *twice* for 90% of new-tire service per recap! The tires in the picture have already run more than 4,300 hours. The patented B. F. Goodrich nylon shock shield is one reason for this amazing record.

Layers of strong, elastic nylon cords under the tread stretch together to protect the tire body from rock cuts and bruises. This means you get more original hours of service, more recappable tires and more hours of service per recap, increased bruise resistance and less danger of tread separation. You save 4 ways, yet you pay nothing extra for the exclusive nylon shock shield.

B. F. Goodrich Universal tires are built with a specially-compounded tread that resists snags and cuts, gives 2-way traction and longer wear. This is one more reason why you get better performance from B. F. Goodrich off-the-road tires. See the complete money-saving line at your B. F. Goodrich retailer's store. The address is listed under Tires in the Yellow Pages of your phone book. Or mail the coupon below.

**Specify B. F. Goodrich tires when ordering new equipment**

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**NEWS ABOUT ANOTHER PREPAKT DEVELOPMENT—**

# Simplified Technique Produces Improved Tunnel and Shaft Linings

A new Prepakt technique has proved highly successful in the lining or relining of various type tunnels. It is particularly suited for use on power plant installations —penstocks, draft tubes, pressure shafts and other tunnels.

This simplified technique is applicable where a steel lining is used or where forms are built. In either case, coarse aggregate is preplaced in the annular space, then Intrusion Mortar is pumped in to completely fill all voids and form Prepakt Concrete.

Important economies and advantages are achieved with the Prepakt method:

(1) Seams and fissures in existing tunnel outlines are completely filled by Intrusion Mortar as it is pumped into preplaced aggregate.

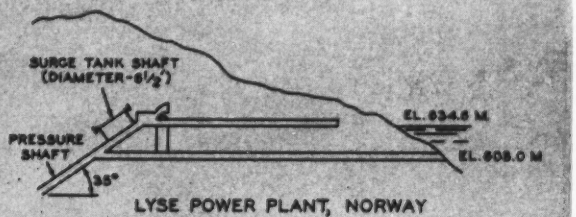
(2) Complete crown filling is assured in one operation.

(3) A strong, monolithic lining is produced by Prepakt Concrete's low setting and thermal shrinkage.

These superior results are achieved at costs equal to or lower than those obtained by competitive methods.

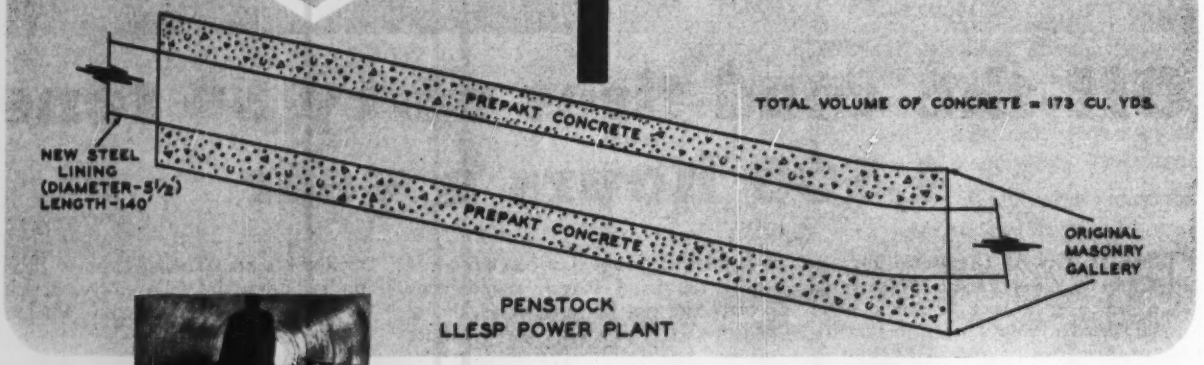
*Two typical projects illustrating applications of this Prepakt development are presented below. For complete information on Prepakt methods and materials, contact the Main Office, Room 779-J, Union Commerce Bldg., Cleveland.*

**Prepakt Concrete was employed in a test installation at the Lyse Power Plant in Norway. A/S Grunnboring constructed surge tank shaft with formwork, reported excellent results.**



LYSE POWER PLANT, NORWAY

**New steel linings for penstock (drawing shown) and draft tube at Llesp hydroelectric plant in the Spanish Pyrenees Mountains were embedded by Prepakt Iberica, S. A.**


PREPAKT CONCRETE
PREPAKT CONCRETE
TOTAL VOLUME OF CONCRETE = 173 CU. YDS.
NEW STEEL LINING (DIAMETER-5½') LENGTH-140'
ORIGINAL MASONRY GALLERY
PENSTOCK
LLESP POWER PLANT

Intrusion Mortar was pumped through steel lining to consolidate preplaced aggregate in annular space between old penstock wall and steel shell.

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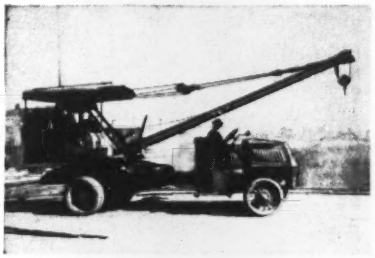
## How "Cranes - on - Rubber" Got Their Start

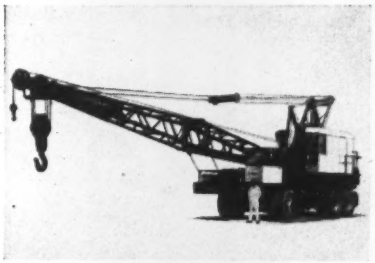
Back in 1918, General Pershing asked for 125 mobile cranes on truck chassis to work on the docks in France to speed up the handling of war material. But, World War I ended before such cranes were available. However, F. A. Smythe, then President of The Thew Shovel Co. in Lorain, Ohio, developed the idea and, late in 1918, the Universal Crane Co., a subsidiary of Thew, marketed the first so-called "Truck Crane".



*The first truck crane — 1918 model*

In the years that followed, much happened to "truck cranes". They became accepted tools of the construction industry, capacities increased, booms became longer, and finally exceeded the capabilities of the commercial truck chassis as mountings. These were replaced with a heavy-duty carrier especially designed for the live, highly-concentrated loads of shovel-crane use. The first such carrier, on which was mounted a Lorain turntable, was the Lorain Moto-Crane, developed and produced by Thew in 1940. Thew Shovel Co. still designs and builds Moto-Cranes in their own plants.

The first Universal Truck Crane had a lifting capacity of 3 tons with a maximum boom of 20 ft. Today, Moto-Cranes are made in a variety of capacities from 6 to 45 tons, with highway speeds up to 33 m.p.h. Rear axles mounted on rocker beams, air steer, large dual wheels, ample tractive effort and the availability of front end drive make them exceptionally efficient for off-the-road travel over soft and rough ground.



*World's largest crane on rubber today*

While the trade-marked name for the Lorain 2-engine rubber-tire machine is "Moto-Crane", it has been many years since their use has been limited to lifting crane service only. Front ends are also available for shovel, dragline, clamshell, hoe and scoop shovel use as well.

# 2 NEW MOTO-CRANE® MODELS BY LORAIN

**22½ TONS**

## LORAIN MODEL MC-424

2 gasoline engines (1 on turntable, 1 on carrier); available as shovel, crane, dragline, clamshell and hoe; 96" over-all width; 10 forward speeds (up to 27 m.p.h.), 2 reverse speeds; air brakes; maximum boom with tip - 125 ft. May be had with diesel power for turntable, third drum, power load lowering, front wheel brakes and many other accessories.

Also available as a companion single-engine Self-Propelled machine — Model SP-424.

**17½ TONS**

## LORAIN-TL MODEL MC-254W

Available as ¾-yd. shovel, crane, dragline, clamshell, hoe or 1¼ cu. yd. scoop shovel. 106" over-all width; 8 forward speeds (up to 37 m.p.h.), 2 reverse speeds; air brakes; maximum boom length with tip is 95 ft. May be had with diesel power for turntable and carrier, with front driving axle, third drum and many other accessories.

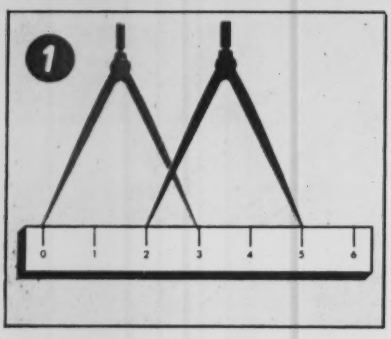
Also available as a companion single-engine Self-Propelled machine — Model SP-254W.

Now you can have even greater selection from the Lorain line of products with the addition of these 4 new Moto-Crane and Self-Propelled models. Thew-Lorain is now better prepared than ever to serve *all* your shovel-crane needs — whether on rubber tires or crawlers. See your Lorain distributor for the full Lorain story.

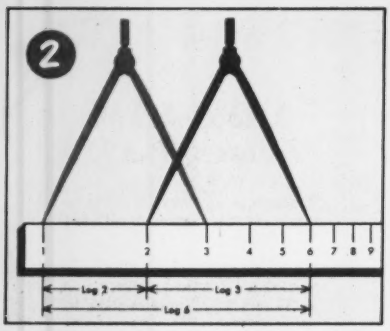
**THEW LORAIN.**

THE THEW SHOVEL CO.,
LORAIN, OHIO

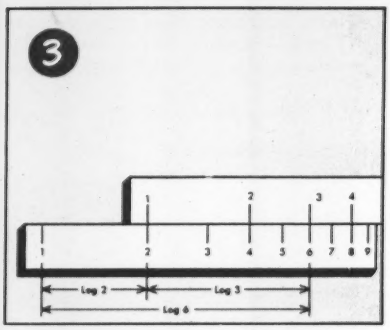
# Why a Slide Rule Adds



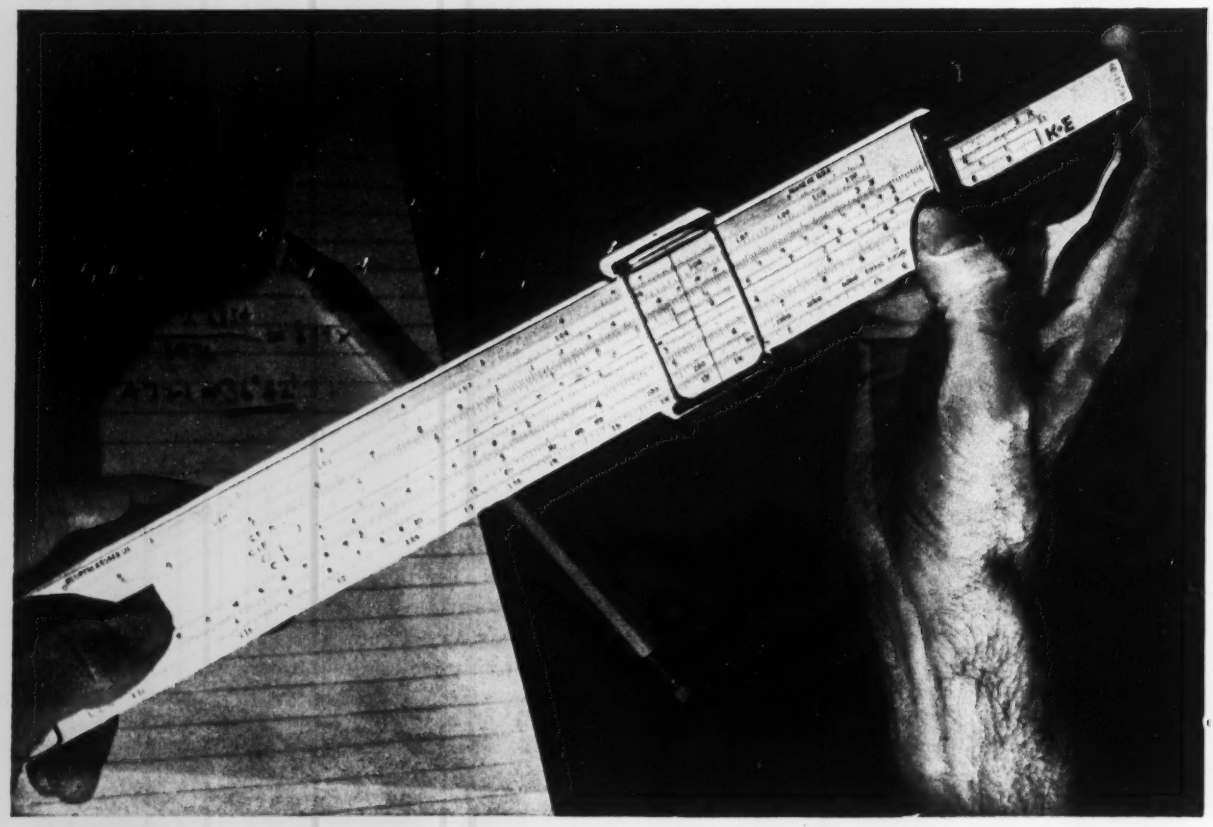

In a mechanical sense, the slide rule merely adds and subtracts quantities. How these simple operations can be performed mechanically may be seen from the illustration above, which shows the addition of 2 and 3 by means of a pair of dividers applied to an ordinary 6-inch rule. Even many electronic calculators work basically on this principle.



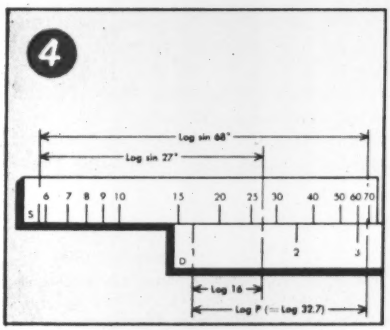

With a different system of calibrations on the scale, if appropriate meanings are assigned to them, more difficult problems may be solved in the same way. An example of this is seen above where a pair of dividers is shown adding 2 and 3 on a logarithmic scale and obtaining the answer 6. Advantage is taken of the fact that the multiplication of numbers may be accomplished by the addition of their logarithms.



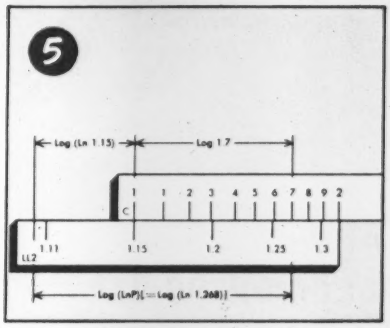

A handier method, which begins to approach the usefulness of a slide rule, is to place two similar logarithmic scales together. Seen above is the simple setting in which 2 is shown being multiplied by 3. Observing the illustration it can be seen that the same setting also multiplies 2 by 2 and 4. Without changing the setting, the device shows the corresponding operations in division.



# to Multiply




Problems in plane trigonometry require only appropriate logarithmic scales, calibrated to read in degrees so that operations can be performed on the functions of angles. Two scales of this kind are generally used: one for the sines of angles and the other for tangents. Above is seen a setting for finding $P = \frac{16 \text{ Sin } 68°}{\text{Sin } 27°}$.



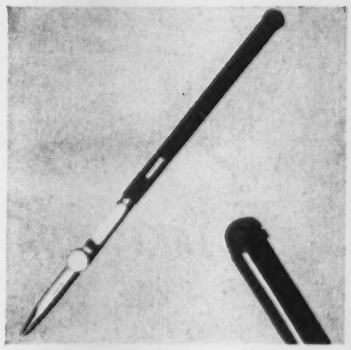

Problems of greater complexity, involving higher powers and roots of numbers, including fractional and negative powers and roots, can also be made as easy as 2 + 3 by means of appropriate logarithmic scales. Known as log log scales, they are calibrated to read in logarithms of logarithms. Above is seen a setting for finding $P = 1.15^{1.7}$.

The slide rule has been called the symbol of the engineer. The symbol that distinguishes the slide rule itself for leadership in design and workmanship is the K&E trade mark or the name KEUFFEL & ESSER CO.

Pioneers in the manufacture of slide rules in America, K&E have always been in the forefront with new ideas and improvements. The most recent example is the slide rule of today, the K&E Log Log Duplex Decitrig*, designed on the fundamental and simple principle of referring all its scales to the basic C-D scales. This enables problems involving arithmetic, trigonometric and exponential functions to be readily solved without reading any but the final answer.

Ask your K&E Distributor or Branch for full information about K&E Slide Rules.

# The Right Angle



If you'd like l-o-n-g mileage without re-sharpening, get a PARAGON* RED TIP ruling pen. They are tipped with tungsten carbide alloy butt-welded to stainless steel blades. Ideal for use on aluminum, glass cloth and other abrasive surfaces as well as on regular paper or cloth. Identify it by the red tip at the end of the handle.

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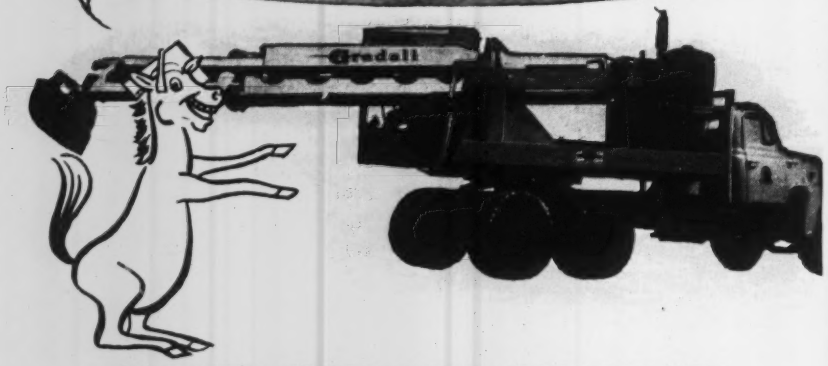
# Let's Talk Horse Sense about Horsepower

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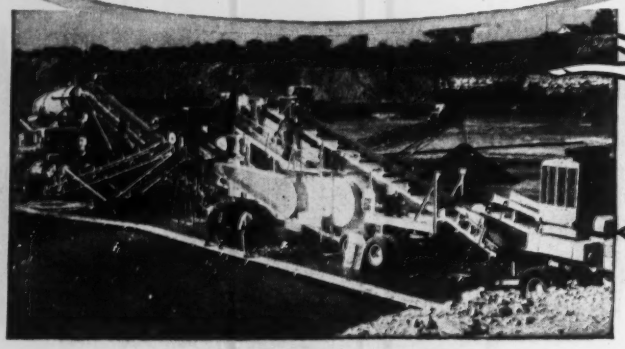

Compare the extra weight and extra strength of MM Engines. Note the large, sturdy crankshaft with its husky cheeks and throws . . . the larger bearings which reduce combustion pressures . . . the extra crankcase depth below the center line of the crankshaft. Examine all these factors in terms of overall performance and longer engine life, and you'll see there's real horse sense in every part of MM heavy-duty design.

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**MINNEAPOLIS 1, MINNESOTA**


# READER COMMENT

## Safer highways

SIR: Frank B. Robb of Cleveland, in your issue of Sept. 17, p. 12 said much that is pertinent concerning the awards in June to Robert Moses and others for best essays outlining procedure for improvement of highways.

Mr. Moses' recommendations contained nothing that was not "orthodox."

Let the public have some of the ideas presented by others that were not "orthodox". Many of these, if generally practicable, would no doubt involves changes in car model and quantity production, but are we to continue to kill 30,000 people per year, and maim ten times as many, because of the perhaps misdirected dollar cost to manufacturers and public?

The whole Moses theme is spend and spend along usual lines. Why not part of this spending on real safety and greater street capacity without rebuilding a city at $10 million per mile.

Smaller cars must come for city use.

Four wheel steering must come for city use to simplify parking.

Speed limiting devices should be required.

Red advertising signs should be prohibited.

A strong car signal should show outside when car is overspeeding.

Uniform signal rules should be adopted throughout the country.

If some of these and perhaps numerous others that should be listed, are adopted, there will be some other answer than spend, spend, spend.

GEORGE R. WADLEIGH
*Consulting Engineer*
*New York*

## Only geography off

SIR: Your Oct. 1 issue contained an article entitled "Wonder Drugs" in which it was stated that enzyme catalysts had been successfully used at the Oakland, Calif., sewage plant. The authors of this article have obviously been misinformed concerning our experience with these materials.

The City of Oakland does not have a sewage treatment plant of its own, being served by a treatment plant operated by the East Bay Municipal Utility District. This plant also serves the five neighboring cities of Alameda, Albany, Berkeley, Emeryville, and Piedmont. This plant is of the primary type and does not have trickling filters.

No enzyme catalysts have ever been purchased for use at this plant.

(*Continued on page 14*)

# *Tough jobs made easy*

# with Dressers

Every pipeline job has its tough spots. Maybe it's a complicated valve setting, or a gallery where space is cramped. Perhaps there's a steep grade or subsurface structures to be circumvented. From penstocks to filter galleries, wherever pipe is joined, Dresser Couplings simplify installation—pay *double* dividends when the going gets tough.

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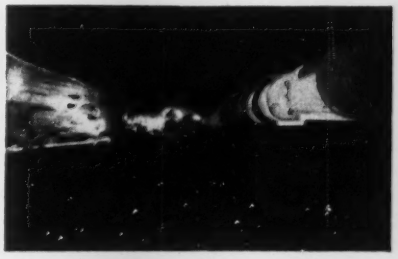
Existing pipe networks often seriously complicate installation of new lines. Dressers supply the simplest, fastest way to get under or around underground obstacles. Line is completed easier, quicker.

This valve setting and tie-in was greatly simplified and stress on the valve body reduced by Dresser Couplings on *both* sides of the valve. Workmen installed Dressers quickly, even in this cramped space.



Air and water supply lines used in the construction of Brooklyn Battery Tunnel were connected with Dressers. Proved *dependable*, Dressers provided the fast, simple answer to this pipeline problem.

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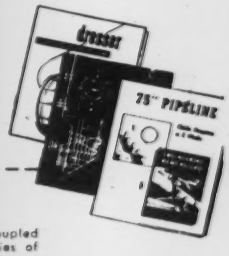


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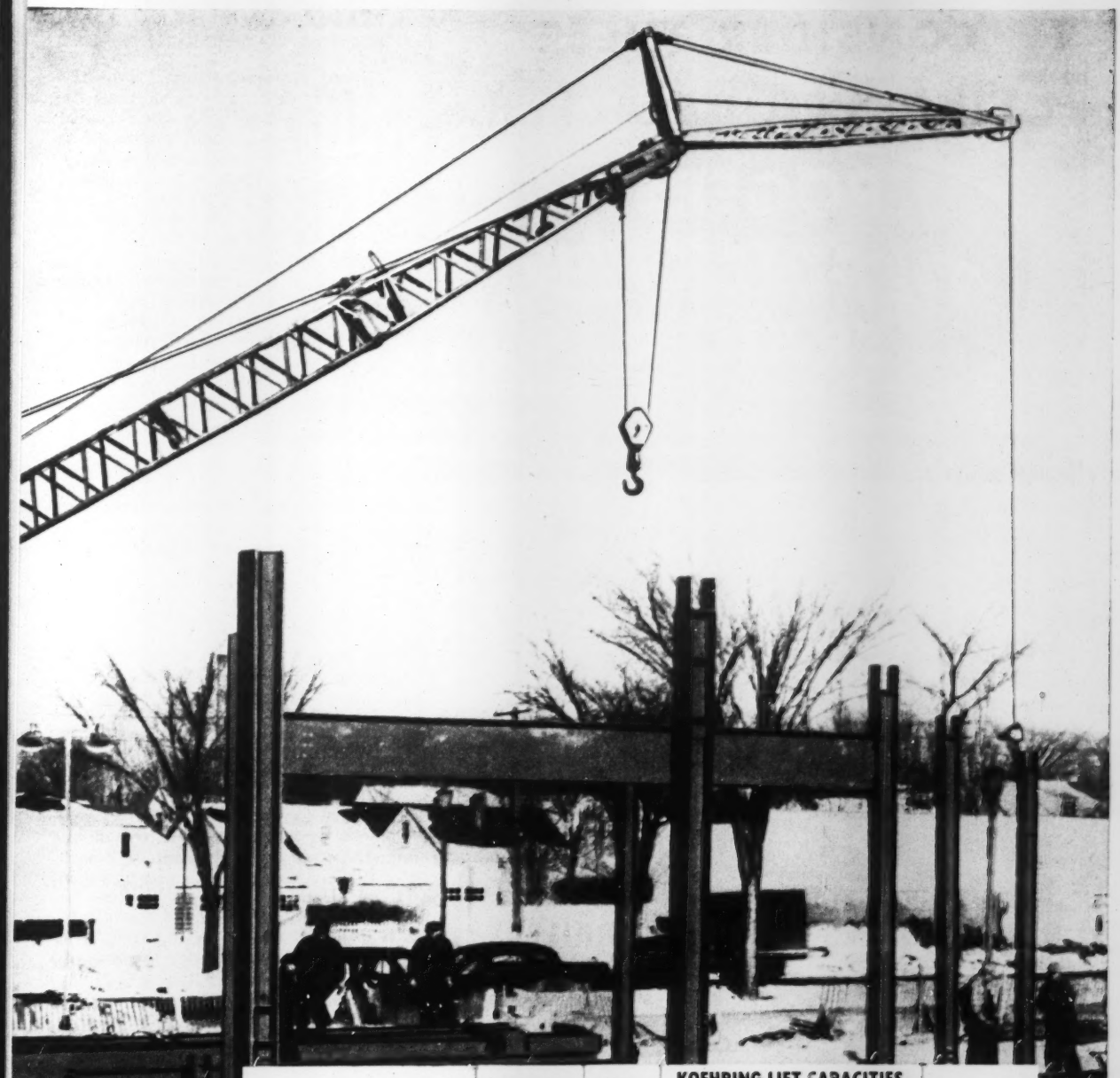

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| KOEHRING MODEL | SIZE DIPPER | KOEHRING LIFT CAPACITIES (Crawler ratings based on 75% of tipping load. Rubber-tired machines —85% of tipping load) | | Other lift capacities |
|---|---|---|---|---|
| 205 CRAWLER | ½-Yd. | 20,000 lbs. | 30-foot boom at 10-ft. radius | ? |
| 304 CRAWLER | ¾-Yd. | 27,800 lbs. | 35-foot boom at 12-foot radius | ? |
| 304 RUBBER-TIRED | ¾-Yd. | 50,000 lbs. | 30-foot boom at 10-ft. radius | ? |
| 605 CRAWLER | 1½-Yds. | 72,300 lbs. | 50-foot boom at 12-foot radius | ? |
| 1005 CRAWLER | 2½ Yds. | 159,000 lbs. | 50-foot boom at 12 foot radius | ? |

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## READER COMMENT

However, we were contacted by the local distributor of one of these catalysts, "Enzymatic", who claimed that his product would remove grease accumulations from our raw sludge lines, improve gas production, reduce digestion time, and break up layers of relatively indigestible material which had accumulated in our digestion tanks.

Tests were conducted both in the field and by our laboratory staff, using samples furnished by the distributor. Our tests failed to substantiate any of the claims made by the manufacturer of this product, and we do not now or in the foreseeable future contemplate its use. The results of these tests were reported to the manufacturer.

E. R. Ross
*Superintendent,*
*Sewage Treatment Plant*

[EDITORS NOTE: The authors, Professors Sawyer and McKinney, had everything right except their geography. The plant they referred to as being in Oakland is actually a few miles away in San Leandro, Calif.]

## How much chloride in pipe?

SIR: Your editorial of April 23, p. 132 (on the failure of a prestressed concrete pipeline in Canada) was much appreciated as several engineers in Australia hastily leapt to the faulty conclusion to which the editorial referred.

A report in the JOURNAL of the American Concrete Institute, March, 1953, also refers to a similar experience with two different cements.

While it is considered that the use of two cements is a big factor contributing to the corrosion, the use of calcium chloride at Regina must also be a contributing factor.

It would be interesting to find out: (1) What percentage of calcium chloride was used at Regina. (2) If calcium chloride was used in the example mentioned in the ACI JOURNAL.

J. HASKER
*Chief Engineer*
*Rocla Pipes, Ltd.*
*Melbourne, Australia*

## CALENDAR

**Illinois Traffic Engineering Conference,** University of Illinois campus, Urbana, Ill., Nov. 3-4.

**Structural Clay Products Institute,** The Greenbrier, White Sulphur Springs, W. Va., Nov. 7-11.

**American Association of State Highway Officials,** annual meeting, Wm. Penn Hotel, Pittsburgh, Pa., Nov. 10-13.

**Conference on porcelain enamel in the building industry,** National Academy of Sciences, Washington, D. C., Nov. 12-13.

**Fall meeting, Tennessee Valley section, ASCE,** Whittle Springs Hotel, Knoxville, Tenn., Nov. 13-14.

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- There are 295 wires in this particular construction . . . 9 different sizes of wire.
- All wires are drawn in Macwhyte's plant to assure uniform quality.
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- Macwhyte's PREforming process forms the wires and strands into a spiral so they lie naturally in place with a minimum of internal stress.
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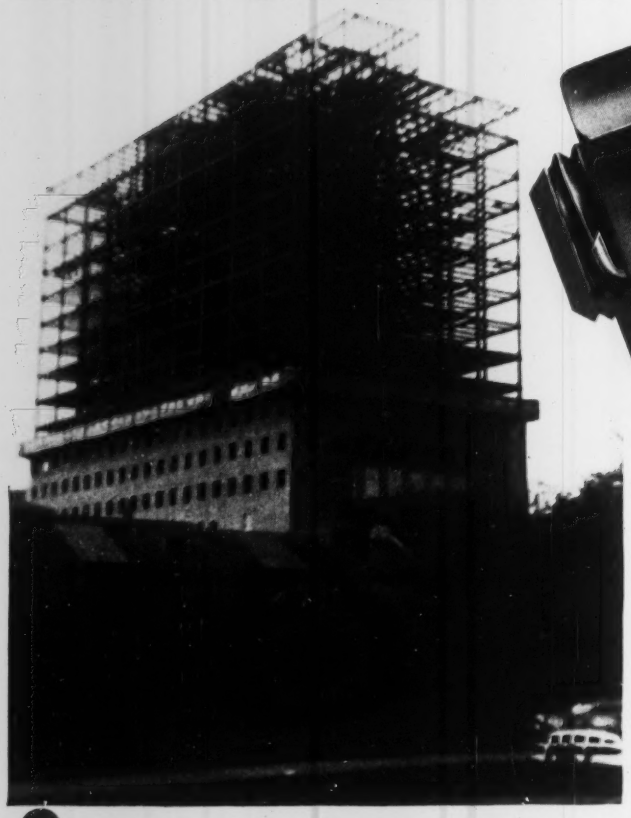

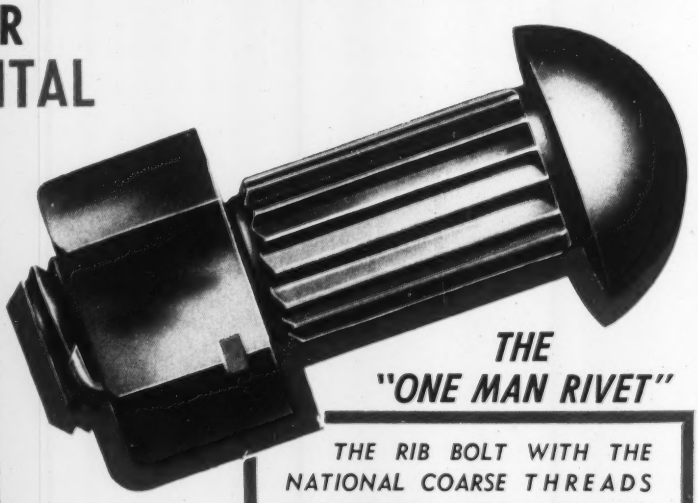

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LEBANON, PENNSYLVANIA

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# THE CONSTRUCTION WEEK

- **Substitutes for Hell's Canyon?**—It's not widely known, but the Corps of Engineers is quietly at work re-evaluating dam sites on the Snake River system. Purpose: to provide storage for flood control and to firm up run-of-the-river downstream power plants.

  That kind of storage would have been provided by the Bureau of Reclamation's Hell's Canyon Dam—but that particular project seems pretty definitely out, in favor of the three-dam Idaho Power Co. proposal (which doesn't include substantial storage).

  If the private development is finally okayed, engineers figure four storage dams may be required: White Pine and Bruces Eddy on the north fork of the Clearwater; Penny Cliffs on the main stream of the Clearwater, and Mountain Sheep on the Snake itself.

- **Expensive warning**—Talk of construction of a continental early air-raid warning screen across northern Canada (ENR Oct. 22, p. 17) brought the guessers out in full force as to how much it might cost. One guess: "a cheap job" at $370 million—30% for construction.

- **Not scenery**—Aroused by criticisms of planting along state highways as "just scenery," California State Highway Engineer G. T. McCoy looked up some facts and figures, and unburdened himself of a public statement:

  Landscaping costs the state about 64 cents out of every $100 it spends for highway construction; the landscaping (which he prefers to call "roadside development") contributes to improving traffic safety, prevents erosion, controls weeds, reduces fire hazard.

- **Fight on power policy?**—Alarmed by what appear to be limitations in treatment of preferential customers, Missouri Basin Rural Electric Cooperative officials are threatening injunction proceedings to halt application of the newly enunciated federal power policy (ENR Aug. 27, p. 23), unless their demands for delay are met.

  Meeting at Omaha, about 100 rural electric group officials said they were "alarmed" by changes under the new power policy that would affect contracts with private power companies. In some cases, they said, there is no provision apparent for recalling power from private users when it is needed by preference customers. And the electric cooperative leaders—favored in policies over many years—saw this policy wrecking many of their plans.

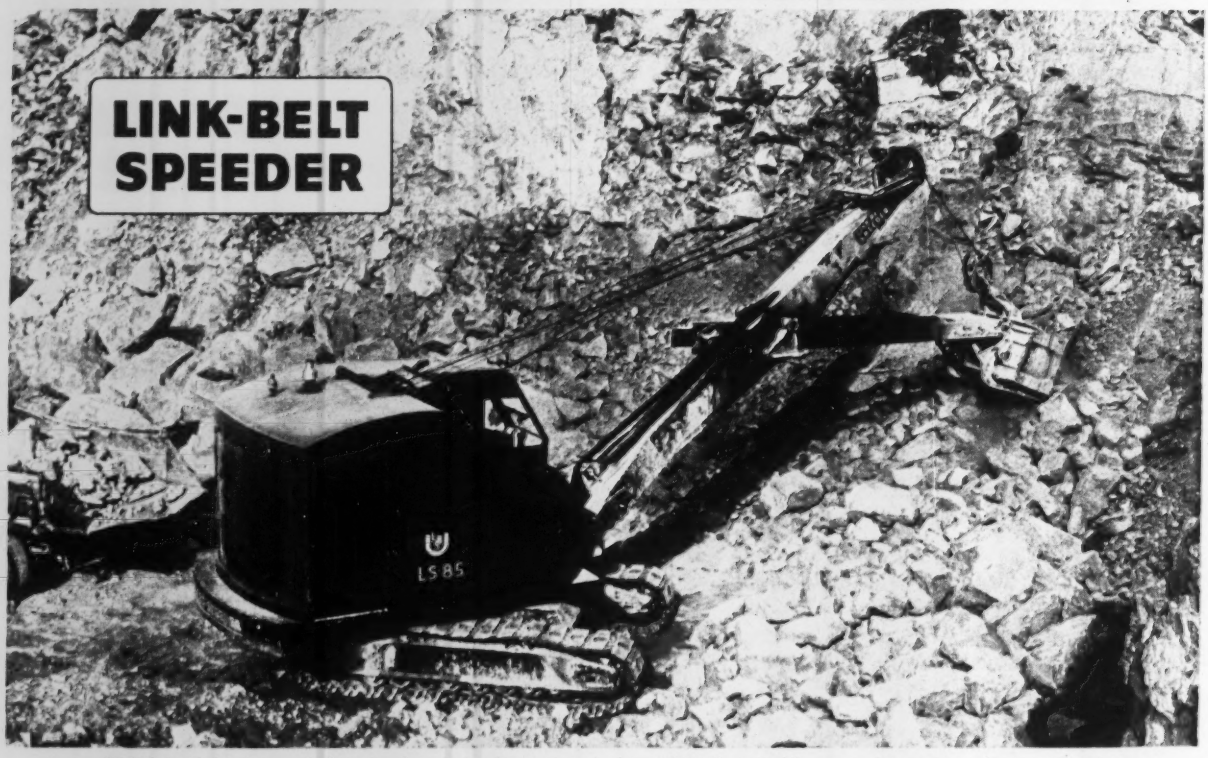
  They appealed for a year's application of the new policy—on pain of injunctive action and appeals to Congress.

- **Baltimore parking out**—Convinced that private interests can carry on—and with a Grand Jury investigation under way—Baltimore called off its city-financed off-street parking program, and hoped for the best.

  The Grand Jury was investigating charges that a contractor obtained $186,000 fraudulently in city advances for garage construction, with connivance of a city and a commission official.

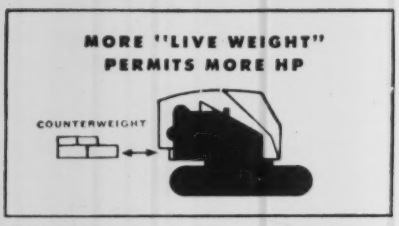
***Before you buy:***

# COMPARE NET HP!




This LS-85, despite tough, big-chunk rock, has been operating over 1200 hours without requiring one replacement part!

## Don't judge available power by engine model only ... NET hp is what adds up to extra profit!




COMPARE shovel-cranes with and without counterweight. That test spotlights the size, weight and heft built into the working parts and structural members. You'll find the LS-85 has more "live weight" than comparable ¾-yard shovel-cranes.

Greater net horsepower assures faster, deeper digging. Bigger loads are handled without stalling. For example: the diesel driven heavy-duty ¾-yard LS-85 packs 92 net hp. That's more power than comparably-sized competitive rigs can safely use. It's why the LS-85 has more digging force behind its bucket teeth . . . why it cuts so smoothly . . . hoists and swings without a pause.

Use of greater net hp is practical because of all-welded, stress-relieved construction *and extra "live weight."* This *extra live weight* is in heavier, sturdier working parts and structural members—rather than a heavier counterweight. All this means year-after-year service and low maintenance costs. So whatever you do, don't compare power by the engine model only—CHECK *NET* HP.

For more facts on the LS-85, ask your distributor, or write for Catalog 2317. For the complete line, request Catalog 2373.

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# WASHINGTON OBSERVER

**The Administration now admits deficits at least through 1956.** Foreign economic commitments and continuing demands for military preparedness have knocked out the Budget Director's hope for a balance next fiscal year. Biggest reason was the recommendation of the Joint Chiefs of Staff that present military spending—around $40-$42 billion—will have to go on another year, at least.

**Construction programs are getting a review.** Base building, expansion and modernization are up. There may be a cutback, of course. General Twining says the new Spanish bases may eliminate the need for building the last two scheduled air bases in North Africa.

•

**Two commissions involved in construction** keep in the news even before they really get under way.

**TVA controversy took on some more heat** from Clarence Manion, chairman of the commission studying federal-state relationships—including such things as federal funds for highways, airports, hospitals, etc. Manion said that TVA should never have been built by the federal government, and that he was all for selling it to private buyers. Eisenhower later said he thought such proposals were a little drastic.

**Newly named counsel to power-and-water task force** of the new Hoover Commission is Donald Richberg. Job of the commission is to cut back on the number of things the federal government does. Richberg, one of the original New Dealers and a top man in the NRA, has been an outspoken critic of government-in-business for a long time. Executive director of the task force is Charles D. Curran. He was staff director of the House Public Works Subcommittee which last December tore into all the government agencies involved in flood control and power.

•

**AFL has "abandoned hope" of "constructive action" on Taft-Hartley.** AFL chief George Meany now says unions' best hope is that Congress will do nothing during the upcoming session—and that a more-favorable-to-unions Congress is elected a year from now.

•

**The passing of Big Bill Hutcheson** increases the chances of AFL-CIO unity. Strongly Republican, the carpenters union boss ran his own political program rather than join in the AFL political setup, which mostly supported Democrats.

**John L. Lewis and Richard J. Gray** remain to carry the torch of Republicanism among labor leaders, but it isn't burning very brightly. Dave Beck has played ball with the Republicans in the past, although he won't admit to being a Republican. He is making a pitch for Eisenhower's friendship.

**Hutcheson was a major obstacle to unity** with the CIO and also within the AFL. His stubborn opposition to industrial unionism as a threat to carpenters jurisdiction was largely responsible for starting the CIO, and dampened chances of AFL-CIO merger. Hutcheson's fights with the machinists over millwright jobs kept the machinists out of the AFL for years.

•

**Decision to go ahead with $40-million civilian atomic power plant** (see page 24) is a sure sign that AEC believes it can safely divert some of its resources—money, technicians, and materials—to non-military applications.

**Russian development of H-bomb** hasn't caused any plans for new expansion here. Present expansion of U. S. facilities to build up H-bomb production—at Savannah River, Paducah, Portsmouth, and Oak Ridge—was started to make sure we stayed ahead of the Soviet.

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*ENR photos by Compton*

# ASCE members hear problems of transport, ore development

**New York meeting also points up revitalization of sanitary section—Thruway construction and engineering, development of Orinoco iron ore resources get spotlights**

Served with a program of more than 100 papers, engineers attending the annual convention of the American Society of Civil Engineers in New York City last week had a choice of fare wide enough to please almost any taste or need.

Highlights of the program, measured by attendance at the sessions and volume of information presented, were focused on the New York State Thruway, problems of the sanitary engineer, the great ore development project of U.S. Steel in Venezuela, and the coming role of helicopters in air transportation.

In addition to the technical sessions, the society installed Daniel V. Terrell, dean of engineering, University of Kentucky as its next president; added the names of O. H. Ammann, A. E. Morgan, J. C. Page and C. M. Spofford to its roster of honorary members (ENR Oct. 22, p. 26), and welcomed eight new members to its board of directors. These comprise Enoch R. Needles, consulting engineer of New York and Mason G. Lockwood, consulting engineer of Houston as vice presidents, and the following directors: William S. LaLonde, Jr., chairman, department of civil engineering, Newark (N. J.) College of Engineering; Oliver W. Hartwell, district engineer, Water Resources Division, U.S. Geological Survey, Trenton, N. J.; Thomas C. Shedd, professor of structural engineering, University of Illinois; Samuel B. Morris, general manager, Los Angeles Department of Water and Power; Ernest W. Carlton, professor of structural engineering, Missouri School of Mines; Raymond F. Dawson, professor of civil engineering, U. of Texas.

Another event of importance was an address by Ralph A. Tudor, Undersecretary of the Interior and a member of ASCE. He spoke on the new power policy of the federal government (ENR Aug. 27, p. 23).

A total of 1,601 members registered.

• **New York Thruway**—The longest toll road project in the country, New York State's 427-mi thruway will be fully open by the summer of 1955, Bertram D. Tallamy, chairman of the Thruway Authority, told the convention. And during its first full year of operation it will accommodate 34,000,000 vehicle-trips, 14% of which will be of trucks and the remainder of passenger cars, according to Elmer B. Isaak, of Madigan-Hyland, New York engineering firm acting as consultant to the Thruway Authority.

Mr. Isaak said that a growth factor of 45% in ten years has been estimated, with the growth rate for trucks exceeding that of passenger cars, "so that by that time commercial trips will account for about 19% of the total traffic." He predicted gross revenues from tolls at $19 million for the first year to $35 million ten years later. Commercial toll revenues will constitute some 62% of the total to begin with and progressively increase until they reach 72% in 1965.

"One reason for passenger cars contributing only about 35% of the revenues," said Mr. Isaak, "is the extraordinary travel value offered by the annual permit. Nevertheless, the permits play an important part in Thruway financing. They are to be available to any resident of New York State owning a passenger car. In November 1951, these residents approved a referendum placing the credit of the state behind the bonds of the Thruway Authority. This action made possible a saving of more than $120 million in interest charges on Thruway bonds, and the authority believes this has justified the bargain that permitholders will get."

Mr. Isaak said Thruway use will consist largely of short-distance trips: "Passenger-car trips are expected to average only 34 mi. Eighty percent of all such trips will be for less than 50 mi, whereas fewer than 3% will exceed 200 mi. Average heavy-truck trip on the Thruway is estimated at 94 mi."

• **How to pay for highways**—Highway financing was approached from a different standpoint by Marcus Nadler, economist for the Central Hanover Bank of New York, who told the convention that plenty of money is available for overcoming highway deficiencies, and that next year a stepped-up public works program should be started in order to offset the effects of an adjustment period in our economy.

The U. S. transport deficiency, estimated to include more than $40 billion worth of highway construction, could be made good by the application of indirect taxes now levied on motor vehicle owners, he said.

• **Sanitary group revitalized**—In other fields, the convention's most active subjects from the standpoint of num-

**CHANGE OF COMMAND—Daniel V. Terrell, newly seated ASCE president (left) takes a moment off for a quiet talk with Walter E. Huber, retiring president, after ceremonies that had officially transferred the society's top office to Dean Terrell.**

**U. S. POWER POLICIES under the new Administration were spelled out by Ralph A. Tudor, Undersecretary of the Interior, in a membership luncheon address.**

ber of sessions held were sanitary engineering and construction.

The Sanitary Division, revitalized after a proposed American Institute of Sanitary Engineers had threatened to distract the division's activities (ENR Feb. 12, p. 28), sustained interest through five full sessions.

Most of the enthusiasm came in a session on composting as a method of municipal garbage disposal—or a method of making money, depending on the viewpoint.

Prof. J. R. Snell, head of the Department of Civil Engineering at Michigan State College, reported progress in setting up a field-scale experimental composter (a modified Earp-Thomas variety that mixes as it digests in as little as two to three days). Results, so far, are limited to testing of the equipment. Eric Eweson, inventor of the process still working but not to capacity in Bay Shore, Long Island, N. Y., told of experimentally grinding rock in with organic compost, pound for pound, to get an enriched product.

The University of California was challenged to correct the "misinformation" put out in its early bulletin (No. 1) on composting. Prof. H. B. Gotaas, chairman of U. of C.'s Civil Engineering Division, answered: "Bulletin No. 1 stated the engineering facts as they then existed (1950) and if it kept cities from moving too rapidly (into composting) we made a contribution." (There was applause.)

A paper by Prof. Gotaas and his associate, P. H. McGaughey, concluded with the statement of a belief that an economic composting plant could be designed. These authorities see composting of municipal garbage as basically sound; but they consider it now as a field for private risk capital, perhaps supported in part by public funds.

• **Sludge handling**—On another moot question of sanitary engineering, the generally large attendance heard described sludge concentration processes as applied by Wilbur Torpey in New York (ENR Oct. 22, p. 23) and by John Laboon in Pittsburgh (ENR Oct. 1, p. 30).

In another session, New York's Richard Gould and Chicago's N. E. Anderson set forth their individual practices of sewage aeration. Their use of straight activated sludge, modified aeration, step aeration, and now activated aeration indicated that the activated sludge concept is far from evolving into a single approved method.

In a session on professional problems the Sanitary Division heard Morris Klegerman, New York consultant, propose a formal public relations program on a group basis—and on the highest ethical level—to produce a better public understanding of sanitary works. John E. Kinney of the Ohio River Valley Water Sanitation Commission discussed the industry-regulation agency relationship. Calling industry the best authority on its own waste problems, he cited the cooperative industry task committee activities in the Ohio Valley.

Expanding activities of the Sanitary Engineering Division were also evidenced by interest in a half-day session devoted entirely to air pollution. L. C. McCabe of the U. S. Bureau of Mines pointed out how heavily meteorology and topography are involved in this problem—and how sanitary engineers increasingly are figuring in its solution.

• **Orinoco project**—The Construction Division also participated in five sessions—three of them jointly with other divisions. Of greatest interest—because construction information previously has been meager on it—was the Cerro Bolivar, Venezuela, iron mine project of U. S. Steel.

Brig. Gen. W. W. Wannamaker, chief engineer of Orinoco Mining Co. (U. S. Steel subsidiary), told the convention that shipping of 5,000,000 tons of ore annually will begin in 1954—less than four years after dredging for access to the mine began. The dredging, for the purpose of permitting giant ore ships of the future to steam 154 nautical miles inland along the Orinoco and its delta streams, was described by E. K. Sandbach, vice-president of Gahagan Overseas Const. Co., of New York. Cutting a 26-ft

channel, the Gahagan firm moved 33,000,000 cu yd of material in 32 months.

Ore loading will take place at Puerto Ordaz, a point on the Orinoco that is 90 land miles from the mine. Here a prefabricated dock 1,000x82 ft was placed (ENR May 29, 1952, p. 44) and ore-loading facilities to handle 3,000 tons per hour (ultimately 12,000 tons per hour) are being completed. The dock was described by Howard P. Maxton, De Long Engineering Co., New York; ore-loading facilities were described by L. O. Millard, of Link-Belt Co., Chicago.

Reporting on rail and highway construction between Puerto Ordaz and the mine was George R. Barlow, of Morrison-Knudsen, Inc., New York, who said that the 90-mi rail line will be open next month.

The highway, which willl be 80 mi long, is more than 90% built, except for surfacing.

Construction on the project has been under way for less than two years, a construction time that Mr. Barlow deems excellent, considering difficulties such as rock classified as "double extra-hard granite." Crews have been marooned for days by flash floods. The railroad will carry only iron ore and heavy supplies.

Access to the mine will be by automobile and truck.

The mine itself, according to General Wanamaker, is on a hill 1,500 ft high and contains an estimated 500,000,000 tons of ore. The top of the hill and much of the side slopes will be mined by open-excavation methods and hauls will be downhill, rather than uphill as in the open pits of Minnesota's Mesabi range.

• **Helicopters**—Another subject of popular interest at the meeting was the helicopter, its civil engineering implications having been discussed in three papers presented before the Air Transport Division.

Because the core of helicopter operation will be the center-of-the-city heliport, engineers planning to meet the expected upsurge of "copter" use are thinking more in terms of adapting helicopter design to landing facilities and clearances within the heart of cities than of altering any more costly urban real estate than is actually necessary.

At least one expert (John P. W. Vest, of the Aircraft Industries Assn.) discounted wide use of downtown building roofs as heliports. He believes that most roofs are not designed to hold the weight of a 40- or 50-passenger helicopter. Buildings designed specifically to accommodate helicopters are the answer, Vest insisted.

# Toll road plans stepped up

## Engineering study favors $218-million Indiana job—N. J. asks bids on Newark-Holland Tunnel extension

Favorable engineering and traffic surveys last week spurred plans to get a $218-million toll road project started in Indiana. Meantime, bids were advertised for a vital extension of the New Jersey turnpike, and Kentucky was to proceed with a $30-million job.

• **A $218-million Indiana job**—The Indiana Toll Road Commission has indicated its satisfaction with preliminary engineering reports on the proposed 156-mi turnpike across the northern edge of the state from the Ohio line to Chicago.

The J. E. Greiner Co., of Baltimore, estimated total cost of the toll road at about $218 million, of which construction costs would represent $165.7 million. Work is scheduled to begin next spring.

Plans call for a 300-ft right-of-way and two 24-ft wide pavements separated by a 56-ft median strip. The turnpike will cross 154 state and county highways and 26 railroads. Only two major river bridges will be needed; smaller stream crossings will require 10 spans.

On toll charges, the firm of Parsons, Brinckerhoff, Hall & Macdonald of New York made these recommendations: for passenger cars and light trucks, $1.95 for a full trip; for heavy trucks, rates ranging from $3.05 to $13.16. Revenue in the first year of operation, ending June 30, 1957, is estimated at $16.3 million. It is predicted this will increase yearly to $28.1 million in 1966. Engineers expect that during the first year 54.2% of the revenue will come from heavy trucks.

• **Newark Bay bridge bids asked**—The New Jersey Turnpike Authority last week advertised for bids for a bridge across Newark Bay to carry two 36-ft roadways of the turnpike extension that will connect Newark Airport directly with the Holland Tunnel to New York City (see map).

Financing of the extension, which will relieve Newark and Jersey City streets of much heavy truck traffic, was provided for in the authority's new $150-million bond issue (ENR Oct. 22, p. 52). The new issue also will take care of refunding $30 million in outstanding bonds and additional work on the existing turnpike.

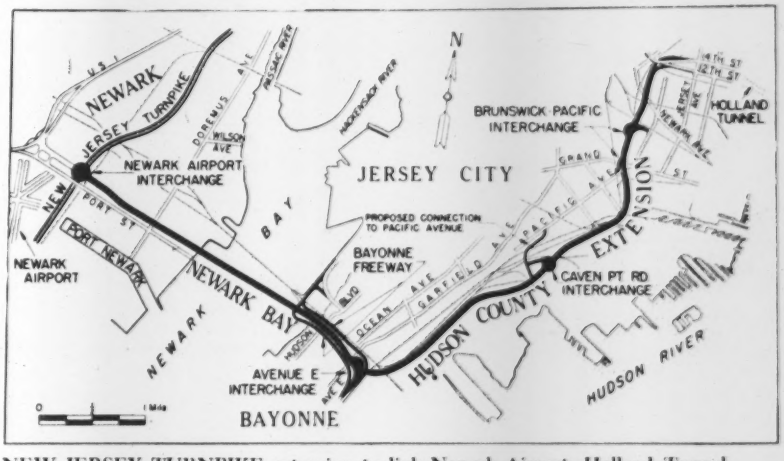
The Newark Bay bridge will be 9,665 ft long, most of which will be rolled-beam or plate-girder spans. Main spans will be a 298-670.5-298-ft continuous through truss, the center span of which will be a tied arch.

Designer is Howard, Needles, Tammen and Bergendoff.

• **Kentucky surveys completed**—Kentucky must await a court ruling on the validity of its 1950 toll road enabling act before proceeding with the financing and construction of the proposed $30-million, 40-mi turnpike between Louisville and Elizabethtown.

The turnpike will consist of four 12-ft-wide pavements separated by a raised median strip 20 ft wide. Rights-of-way will be 300 ft wide. A heavy fence will line both sides of the highway for the entire length.

Toll rates will be 1½ cents per mile for passenger cars, 2½ cents for two-axle, dual-tire trucks and 4 cents for three-axle combination trucks.




NEW JERSEY TURNPIKE extension to link Newark Airport, Holland Tunnel.

# Atomic power

## Development contract for first full-scale plant is let by AEC to Westinghouse

The Atomic Energy Commission last week ushered in a new era of power plant construction with the announcement that it had let a contract to the Westinghouse Electric Co. for development of a utility company-sized plant.

Even before this announcement the General Electric Co. had proposed an immediate development along the same lines (ENR Oct. 22, p. 17). Thus both AEC and private industry were raring to get on with the pioneer task. AEC aims to have the first plant in operation within four years.

Plans for the first plant have not yet seen the light of the drawing boards. It is generally expected that the innovations will be mainly in the heat production and heat transfer sections of the power plant. With minor alterations, the boiler, turbine and generator sections likely will be of conventional design.

Furnace of the new power plant will be an atomic pile probably fueled with enriched Uranium 238—the material from which bomb-worthy plutonium is derived. Heat will come from the controlled fission of this material.

Westinghouse already is knee-deep in AEC reactor work. It recently brought into operation a land-based atomic-powered submarine engine. Earlier the company had done preliminary design work on an atomic-fueled aircraft carrier power system, but this was suspended after the Defense Department decided to stretch out this program.

In announcing initiation of the industrial power venture, AEC gave out these sketchy statistics. The first plant:

- Cost: $20 to $60 million.
- Installed capacity: 60,000 kw—enough to serve the power needs of a city of 100,000 people.
- Time: three to four years to design and construct.
- Location: near one of AEC's large power-using gaseous diffusion plants—Oak Ridge, Tenn., Paducah, Ky., or Portsmouth, Ohio.

While Westinghouse already has been awarded the development contract, AEC has left the way clear for other firms to participate in financing and building the conventional portions of the plant. No decision has been made yet as to operating the plant, but that, too, will be handled under an AEC contract.

Rear Admiral Hyman G. Rickover, who supervised the atomic-powered Naval projects—the submarine engines and the start of the carrier reactor—will direct work on this civilian plant.

*Wide World photo*

**Rear Adm. H. G. Rickover**

AEC has an initial appropriation of $7.9 million to begin work on the plant and a much larger amount is being requested to continue it during the next fiscal year. Up to now, Congress appears to have shown more interest in getting industrial power into the picture than has AEC. Language inserted in the AEC funds bill by Congress makes it possible to undertake this large-scale civilian power plant.

## Dean H. P. Hammond dies; taught engineering 43 years

Harry P. Hammond, 68, dean emeritus of the School of Engineering at the Pennsylvania State College and from 1918 to 1937 on the civil engineering faculty at Polytechnic Institute of Brooklyn, died Oct. 21 at Bellefonte, Pa. He was a C.E. graduate of the University of Pennsylvania and held a Doctor of Engineering degree from Case Institute of Technology.

Dean Hammond taught civil engineering at the University of Pennsylvania and at Lehigh University prior to going to Polytechnic Institute. In 1937, he was named dean of the School of Engineering at Penn State and since his retirement from that position a year ago had been engaged in special consulting work at Wright-Patterson Air Force Base in Ohio. During his years at Penn State, Dean Hammond won two of the top national awards in engineering: the Lamme Award in 1945 and the James H. McGraw Award in 1950. In 1936, he was elected president of the American Society for Engineering Education.

## Sewer construction is N. Y. election issue

Reporting a jeep-mounted inspection trip through the new "corridor" storm sewer in New York City's Borough of Queens back in 1948, ENR said (July 1, 1948, p. 7) that this subterranean motorcade "served to dramatize the existence of a type of municipal improvement that generally passes unnoticed by the public."

Last week in New York, this and other sewers were far from passing unnoticed by the public. Instead, in a confusion of pre-election charges and denials, sewers were front page news with these developments:

Borough President James A. Lundy (running for re-election on the Republican ticket) condemned ¼ mile of 78-in. reinforced concrete sewer pipe at the upper end of the 3-mi corridor sewer (built during the regime of his Democratic predecessor), saying it is in danger of collapse.

Meanwhile, an earlier sewer scandal that brought indictments against contractor Victor Clemente and his son, Dominic, charging conspiracy and fraud in a Laurelton, Queens, sewer job, returned to the news as the case collapsed. A county court judge found the charges invalid, since fewer than half of the grand jury members had been present to hear all the evidence presented. There had been 32 meetings of the panel.

## James B. Hays, expert on foundations, dies

James B. Hays, 64, foundation authority and expert on river development and dam construction, died Oct. 24 in his home town of Summit, N. J. Ill for some time, he had, nevertheless, been in British Columbia within the year for Morrison-Knudsen for whom he had acted as consultant for a number of years.

A graduate of the University of Idaho, Jim Hays, 25 years ago, had pioneered in the application of vibration to concrete in the construction of dams for the Aluminum Company of America, and a short time later in the use of aluminum for structural purposes. But his principal interest centered on foundations, particularly for dams and hydro powerhouses.

He was with the U. S. Bureau of Reclamation, and later with the Tennesssee Valley Authority on Chickamauga and Kentucky Dams. In 1950, on a contract with the Israeli government, he developed the engineering and construction aspects of W. C. Lowdermilk's plan for utilizing the water of the Jordan River for irrigation, supplemented by water from the Mediterranean for power.

# U. S. gets Spanish bases job rolling

## Military planners and A-E contractor representatives now in Spain for site inspection, organization talks

On the job in Spain this week were the U. S. military men who will direct construction of American air and navel bases and representatives of the four architect-engineer firms holding the contract for design and inspection (ENR Oct. 15, p. 21). They were to inspect sites and confer with Spanish authorities and construction leaders on organizing the work.

Official disclosure of the sites of the airfields and naval stations was expected to be made some time this week by the Spanish government. It was believed likely that a statement would be made following a Tuesday conference in Madrid to be attended by Air Force Secretary Harold E. Talbott and Air Force Chief of Staff Gen. Nathan F. Twining.

Top military construction personnel took off for Spain last Friday. Among them was Capt. Robert H. Meade, who has been selected as officer in charge of construction by the Navy Bureau of Yards and Docks, the agency designated to handle both the air and naval projects (ENR Oct. 1, p. 22). Captain Meade, who has been Director of Naval Petroleum and Oil Shale Reserves, was released for the Spanish assignment by Navy Secretary Robert B. Anderson.

Representing the Air Force in this group were Maj. Gen. Lee B. Washbourne, Director of Installations, and John M. Ferry, special assistant for installations in the office of the Undersecretary for Air.

Representatives of the four-firm architect-engineer combine traveled to Spain independently of the military flight and were to be in Madrid in time for the Tuesday conference with Secretary Talbott and General Twining. The A-E contract representatives are: Harrison P. Eddy of Metcalf & Eddy, Boston; E. J. Quirin of Frederick R. Harris Inc., New York City; Alfred Shaw of Shaw, Metz & Dolio, Chicago; and Charles Luckman of Pereira & Luckman, Los Angeles.

Wheels are now in motion to complete the appointment of Rear Adm. Harold Johnson as staff officer for Spanish base construction on the staff of Air Force Maj. Gen. August W. Kissner, who heads the U. S. military team in Spain. Johnson is now district civil engineer, Fifth Naval District, Norfolk, Va.

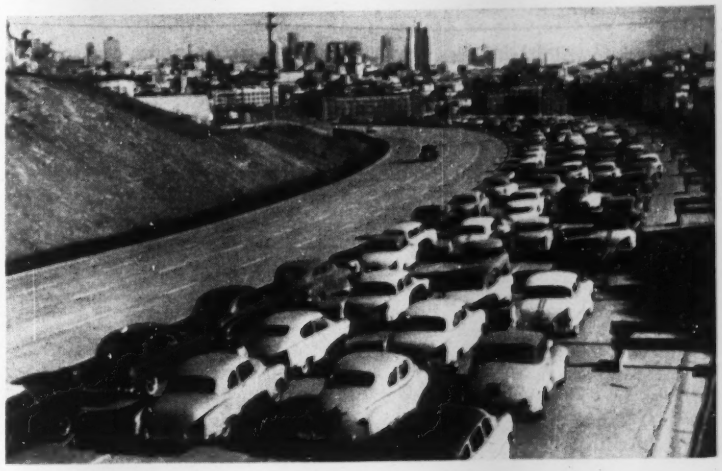
General Washbourne, speaking last week at the annual meeting of the American Society of Civil Engineers, said the first task of the A-E contractors will be to set up shop in Madrid, where they will work with Spanish firms to turn out master plans, conduct soil surveys and prepare preliminary plans and construction drawings.

The entire effort will require a minimum of personnel from the U. S., General Washbourne told the ASCE. The Spanish people will assist to the maximum, he said. He noted that General Kissner, who was chief of the military negotiating group, had been named commander of all U. S. military forces in Spain, and in that capacity will be the one responsible for the entire construction program.

Selection of a U. S. firm or combine to serve as prime contractor, on a cost-plus-fixed-fee basis, is expected about the first of the year. The Bureau of Yards and Docks has asked for up-to-date brochures from firms.

### Alaskan projects

The Alaska District Corps of Engineers has $78 million in authorized defense construction for which it will call bids before the end of the current fiscal year. Projects now under construction represent a total of more than $200 million, while awards are pending on projects costing another $50 million. The work yet to be bid includes 66 Army, Air Force, and other projects at installations throughout Alaska.



# Opening day greeted by traffic tieup

San Francisco's traffic problems were made more complex—instead of being simplified as was the hope—with the opening early in October of a new two-mile section of the Bayshore Freeway, including a notable, long, welded steel viaduct.

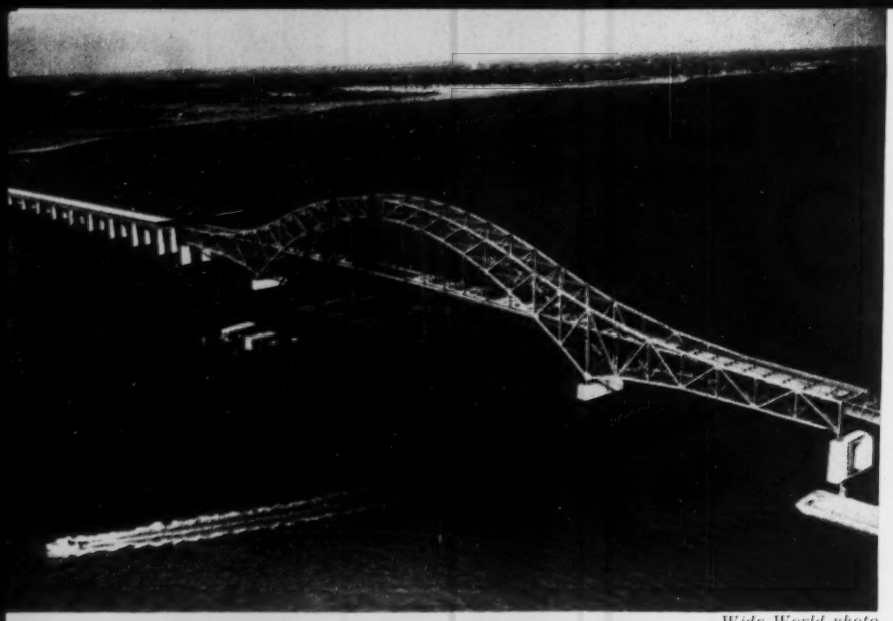
Two-lane on-and-off ramps to the eight-lane freeway pressed commuters' cars into a bottleneck that brought forth complaints instead of the praise that the designers deserved for their efforts to achieve an advanced welded design and good appearance.

By means of automatic welding with the submerged-arc process and manual welding with low-hydrogen electrodes, using special low carbon steel, they were able to fabricate girders and columns with flange metal up to 2½ in. thick and web thicknesses as low as ⅜ in.

The trouble is that the newly opened freeway is only one of several sections still under construction. When all are completed—perhaps two years hence—a fine freeway connection will be provided between the San Francisco-Oakland Bridge and the southern city limits. In the meantime, however, additional temporary connections to the opened portion have been built.

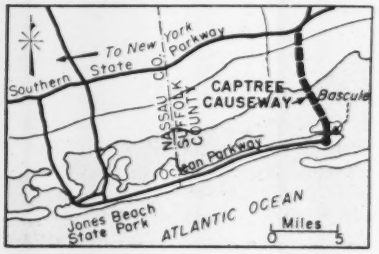
Designed by the bridge department of the California Division of Highways under the direction of F. W. Panhorst and Stewart Mitchell, the freeway work is in charge of G. T. McCoy, state highway engineer. Major contractors were Charles L. Harney, Inc., and a joint venture of Frederickson & Watson and M&K Corp. Steel fabricators were Bethlehem Pacific Coast Steel Co. and Judson Pacific-Murphy Corp.

# Bridge makes parkway link

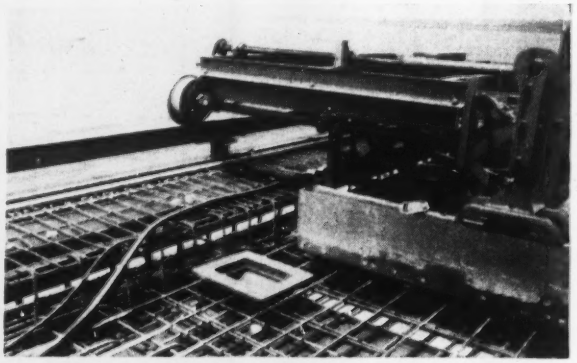


*Wide World photo*

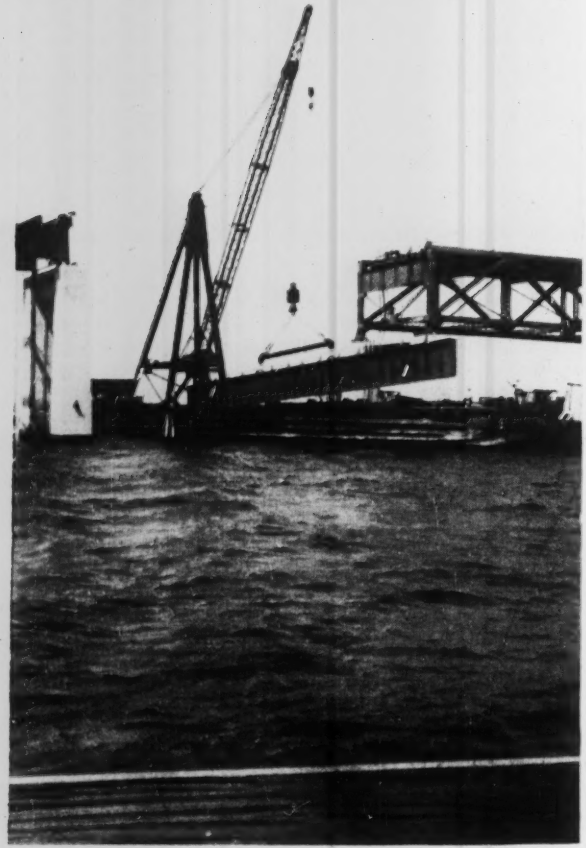
FALSEWORK BENTS support Captree Causeway Bridge as derrick places final members in 600-ft cantilever arch. Pile-supported piers for the bridge and for two 12-span girder approaches were built in open cofferdams by J. Rich Steers, Inc., New York, which also placed pile bents for trestle portions of the project. Superstructure contractor is Hendrickson Bros., Valley Stream, N. Y., with Harris Structural Steel Co., New York, the steel erection subcontractor. Hardesty and Hanover, New York engineering firm, is handling the project for Long Island State Park Commission.




LONELY PARKWAY—For 20 years dead-end Ocean Parkway has handled only light traffic along a little-developed ten-mile stretch of Long Island barrier beach east of famed Jones Beach. Next spring the opening of two-mile $11-million Captree Causeway will tie in Ocean Parkway's eastern end, to provide better beach access for residents of Suffolk County. Project also includes a bascule span.

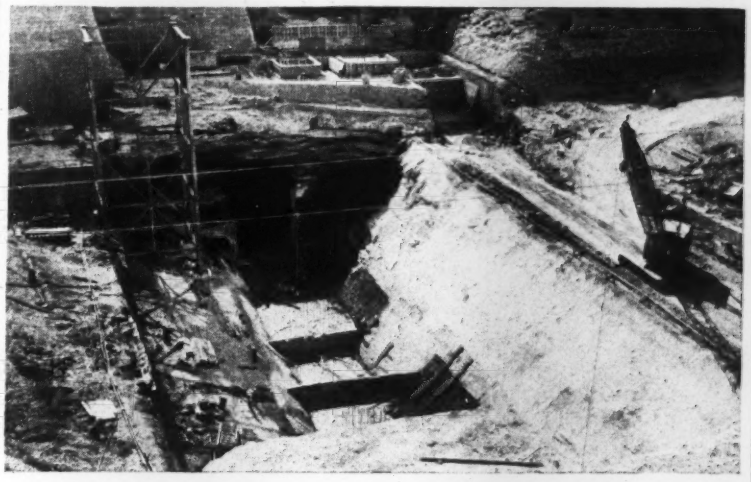


WHEEL ADAPTER—For deck concreting, Hendrickson Bros. put brackets on screed, finishing machine and float bridges, so they could span 31 ft between temporary rails mounted on the permanent bridge-rail brackets.



CLOSING THE GAP between main span and approach is this 110-ft plate girder. It frames into cantilever's anchor-arm steel.

CONCRETE PLANT for two-lane deck placement is mounted on LST hull, which contains a 50,000-gal tank for concrete water.



## Missouri River job to be winterized

**The 157-ft deep excavation for the powerhouse structure at Gavins Point Dam, Army Engineers Missouri River project four miles upstream from Yankton, S. D., will be spanned by a cover to permit winter concrete work. Timber trestles mounted 56 ft up the side of the hole will support a 120x240 ft canvas blanket. Winter work will be concentrated on setting three draft tubes of the powerhouse, each 45 ft high, 22 ft across the throat and 73 ft across the bell. Smallest of the Army Engineers main stem dams, the $60-million Gavins Point project is a rolled earth structure 8,700 ft long and 74 ft high. Its function is to re-regulate flows from Fort Randall Dam 75 miles upstream. A $17.5-million contract for powerhouse foundations, spillway, intake structures, Phase 2 of earthwork was let in March (ENR Mar. 12, p. 27).**

# Accrediting changes proposed to ECPD

Proposals for changing the methods of accrediting courses in engineering schools now employed by the Engineers Council for Professional Development were considered at a recent joint meeting of that organization and the American Society for Engineering Education in New York.

L. E. Grinter, dean of the graduate school at the University of Florida and chairman of the ASEE Committee on Evaluation of Engineering Education, said that his committee favors dividing engineering education into two main groups, "professional-scientific" and "professional-general." The latter classification would be set up to train engineers to serve the areas between engineering and business and between engineering and branches of science requiring a limited application of engineering analysis and design.

The professional-scientific group would require more background in mathematics, physics and chemistry, Dean Grinter said, and may require more than four years training.

Also being considered by the committee is a special designation for institutions with standards substantially above the minimums set for ECPD accrediting. Faculty eminence would be a major factor in conferring this special distinction.

• **Post-college training**—Notable success in ECPD's first attempt to organize local post-college professional training for young engineers was reported by Cornelius Wandmacher, chairman of the ECPD Training Committee and professor of civil engineering at the University of Cincinnati. The initial program was started in Cincinnati with the cooperation of the university, nine industries, the Technical and Scientific Societies Council, and the Engineering Society of Cincinnati.

As a result of an intensive campaign to interest young engineers in continuing their formal education, nine evening courses were organized in which 285 engineers are taking part. The courses are given by the university and regular credits are granted for successful completion of the evening courses.

• **New officers**—L. F. Grant, field secretary of the Engineering Institute of Canada, was reelected chairman of ECPD, and M. D. Hooven of the Public Service Electric & Gas Co., Newark, N. J., was elected vice-chairman to succeed Henry T. Heald, chancellor of New York University.

# Job safety

## The construction industry is urged to improve its enforcement methods

Unless contractors take the initiative in establishing and enforcing proper safety measures on road construction jobs to protect both their workers and the traveling public, additional regulatory legislation may be imposed.

This warning was voiced by Ray H. Hahn of Allegheny Asphalt and Paving Co., Inc., Pittsburgh, at the construction session of the 41st annual meeting of the National Safety Council in Chicago last week.

Hahn cited the need for assistance from both state and local authorities in enforcing detour and reduced speed regulations around highway construction. His organization found it practicable, he said, to employ local police officers on their time off as watchmen and flagmen and to have them appear in uniform.

That the problem of safety in connection with building construction rests not with design but erection methods was stressed by Dale Redsker of the engineering department of the National Surety Corp., Atlanta, Ga.

Redsker emphasized careful planning of temporary structures, use of sound, flaw-free material of sufficient size and strength with a conservative margin of safety against failure, and inspection of these structures before workmen are permitted to use them followed by proper maintenance and caution against overloading.

A bonus system for superintendents and foremen to promote enforcement of safety practices on construction projects was described by Edwin N. Ziner, safety engineer for Volpe Construction Co., Malden, Mass. Each year his company rewards men with good records and is now considering setting up a demerit system to penalize violations.

Ziner mentioned three deterrents to operation of a safety promotion program: prejudices against the use of safety equipment and also against breaking long-established working habits, migratory workers untrained in accident prevention, and lack of preemployment physical examinations in the construction industry.

H. B. Alexander, president of H. B. Alexander & Sons Inc., Harrisburg, Pa., was reelected general chairman of the construction section of the National Safety Council for next year.

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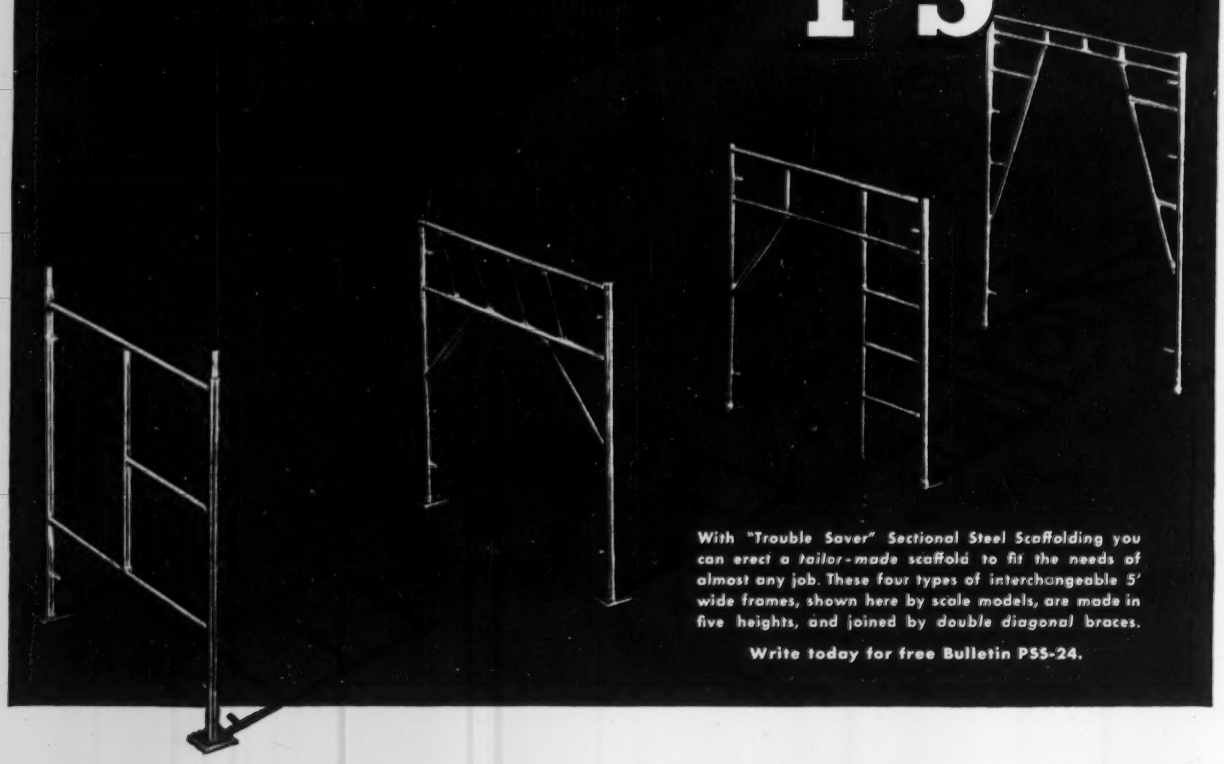

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**BRICKLAYERS, for one trade, have much at stake as New York's 99 Park Ave. again raises question . . .**

# Panel walls: Which trade does what?

When the aluminum facade of a skyscraper at 99 Park Avenue, New York, was applied in six days (ENR Aug. 13, p. 43) architects, engineers and building tradesmen were equally concerned over the emergence of a new technique.

With it has come a host of work assignment problems that can plague the unwary contractor. As yet there is no body of jurisdictional precedent to rely on in handling the new materials and techniques. Each city in which metal-paneled buildings are appearing seems to be developing its own ground rules, based on building codes, availability of work for building crafts and historical practice in disputes with even a shade of similarity.

For example, a contractor bidding on a metal-faced building in New York, where building codes still require masonry back-up walls, can anticipate somewhat less anxiety among bricklayers than can a builder in Minneapolis or Dallas, where codes have been changed to make masonry walls unnecessary.

Let's take a look at what's been happening in two cities where metal-faced structures have sprung up.

• **The Pittsburgh way**—Work assignment disputes were settled in three different ways in three different buildings in Pittsburgh. In the Equitable Building, steel spandrels were filled with light concrete. Because the panels were formed in a shop, a shop local of ironworkers was given that assignment. Erection was handled by stone-setters, members of the bricklayers union, on the theory that the finished panels were precast concrete slabs faced with steel.

In the Aluminum Company of America's office building, aluminum spandrels were set by ironworkers and backed with plaster sprayed by plasterers on lath installed by lathers. Ironworkers had sought the lathing assignment, but had lost out.

The United States Steel Building was somewhat more complicated. Work assignments finally shaped up like this: Factory-formed stainless steel panels were handled by both sheet metal workers and ironworkers. Limestone mullions were set by stone masons, dampproofing was troweled to brick back-up wall by composition roofers, and glass-fiber insulation was applied by carpenters.

All three buildings were built during a period of peak construction, with the result that serious jurisdictional disputes did not arise.

• **The New York way**—99 Park Avenue was the scene of a dispute involving asbestos workers, sheet metal workers, composition roofers and bricklayers.

Aluminum panels, cinderblock back-up, glass-fiber insulation sheets set in mastic and aluminum foil covered with glass wool bats were being handled this way:

Prefabricated aluminum panels were put in place by ironworkers. Bricklayers have been laying cinderblock back-up wall required by New York building codes. Sheets of glass-fiber board set in mastic gave rise to a dispute between asbestos workers and roofers. The dampproofers (roofers) have been troweling mastic onto the inside of the back-up wall and setting the glass-fiber sheets into it. The asbestos workers have claimed that the mastic and glass-fiber application should have been assigned to them, claiming the purpose of the work to be insulation, not dampproofing.

The bricklayers would have been involved in that tiff too, had original specifications for cellular-glass blocks been followed.

A conciliation session held by the Building Trades Employers Assn. resulted in work proceeding without reassignment. Further study was suggested on another aspect of the dispute, in which the asbestos workers sought installation of glass-fiber bats and aluminum foil on panels containing heating and cooling units. Sheet metal workers have been doing the work in the shop where the panels have been assembled.

# Up to Congress

## That's high court view in ignoring two labor cases

Attempts to get Supreme Court review of two major labor cases affecting the construction industry have failed. In the first two weeks of real work in the 1953 term, the high court announced it would not hear cases attacking:

- The AFL glaziers' ban on pre-glazed building materials, and
- The enforcement of Taft-Hartley unfair labor practice provisions against unions and employers in the construction industry.

The court's action leaves in effect lower court decisions which contractors have fought against for a long time. The Joliet, Ill., Contractors' Assn. spent five costly years of NLRB and court litigation—unsuccessfully—against the pre-glazed ban in the first case; and in the second case, the Swinerton & Walberg Co. is the latest of many contractors who vainly argued in the courts that T-H shouldn't be applied to construction. Since 1947, when T-H was passed, the courts consistently have told members of the industry: "It's up to Congress, not us, to exempt you from the terms of T-H."

Ironically, the Joliet contractors went to court to get an order compelling NLRB to hear their case. When originally filed, the board took the position that the amount of interstate commerce involved was not enough to warrant consideration. But under order by a U. S. Court of Appeals, it later accepted the case and then ruled against the employers.

The heart of the complaint was this: Glazier union rules and by-laws forbid members to do any glazing except on the job site, forbid members to work for a contractor who uses pre-glazed material on a job or who doesn't employ union members for his job-site glazing. The contractors claimed these requirements amounted to a T-H violation, arguing they "induced" employees to conduct secondary boycott strikes.

But NLRB and the Seventh Circuit Court of Appeals disagreed with this. They decided:

- Union rules against working on jobs using pre-glazed sash are not illegal, and neither is refusal by workers to accept employment because of the rule.
- Only when two or more workers quit a job they've started if they find pre-glazed sash being used does an illegal boycott occur.

This is the ruling the Supreme Court let stand, so the Joliet contractors now face a "legal boycott" of pre-glazed materials.

In the Swinerton case, the AFL International Assn. of Machinists filed unfair practice charges against both the contractor and subcontractor, building a new General Foods processing plant in San Leandro, Calif. claiming both discriminated against machinists in favor of AFL carpenters union members in filing machinery installation jobs. NLRB found the employers had refused to hire anyone for millwright work who was not either a member of the carpenters union or referred for the job by the carpenters.

Swinerton not only denied using a discriminatory hiring policy, it asked the Ninth Circuit Court of Appeals for a ruling that prosecution of such charges against employers and unions in the building and construction industry does not effectuate the policies of T-H and that enforcement of the board's order in the case—back pay to eight job applicants—was an unconstitutional taking of property without due process of law. It's unfair to carry out this part of the law, said Swinerton, since NLRB has always been unsuccessful in carrying out other important T-H provisions—notably representation elections—in the industry.

The Court of Appeals, however, supported the board's findings and upheld its jurisdiction over the construction industry, ruling it has that discretion under T-H. Prior to T-H in 1947, NLRB left construction labor problems alone; but T-H was aimed, partially, at closed shop and secondary boycott practices in the industry.

The Supreme Court also announced recently that it would hear and decide an appeal by the government from a public contract decision by the U. S. Court of Claims. At issue is that court's ruling that the Binghamton Construction Co., of Binghamton, N. Y. is entitled to collect the difference between erroneous wage rates specified in a flood protection contract and the rates later determined "prevailing" in the area by the Secretary of Labor.

The Binghamton company won a $232,000 contract for a flood construction project on the Chemung River outside Elmira, N. Y. The wage rates set up in the contract were specified under the Davis-Bacon Act as the prevailing rates. But later on, the Labor Department boosted the wage rate determination in that area, and consequently, the Binghamton company had to pay more for labor than it figured in its bid.

The government says wage schedules in government contracts do not guarantee successful bidders that they won't have to pay higher rates to attract workers. The Court of Claims disagreed.

### NLRB draws the line

**County roads are not enough a part of interstate commerce to warrant federal intervention in labor disputes which might affect their construction. The National Labor Relations Board came to that conclusion (ENR Oct. 22, p. 19) in declining to conduct a representation election requested by the United Stone and Allied Products Workers (CIO), among employees of Johnson Concrete Co.**

**The decision reflects the revamped NLRB's effort to leave more labor problems of a local nature to state handling. It means NLRB will step in where a situation may affect the construction of a state road which carries interstate traffic, but not a county road.**

**Johnson Concrete makes and sells concrete blocks and pipe at Salisbury, N. C. It sold more than $50,000 worth of materials last year to customers engaged in interstate commerce. Under NLRB's yardstick this would qualify the company as falling under the board's jurisdiction. But almost all of the sales affecting interstate commerce were to the State Highway Dept. and Public Works Commission for the construction, maintenance and repair of county roads.**

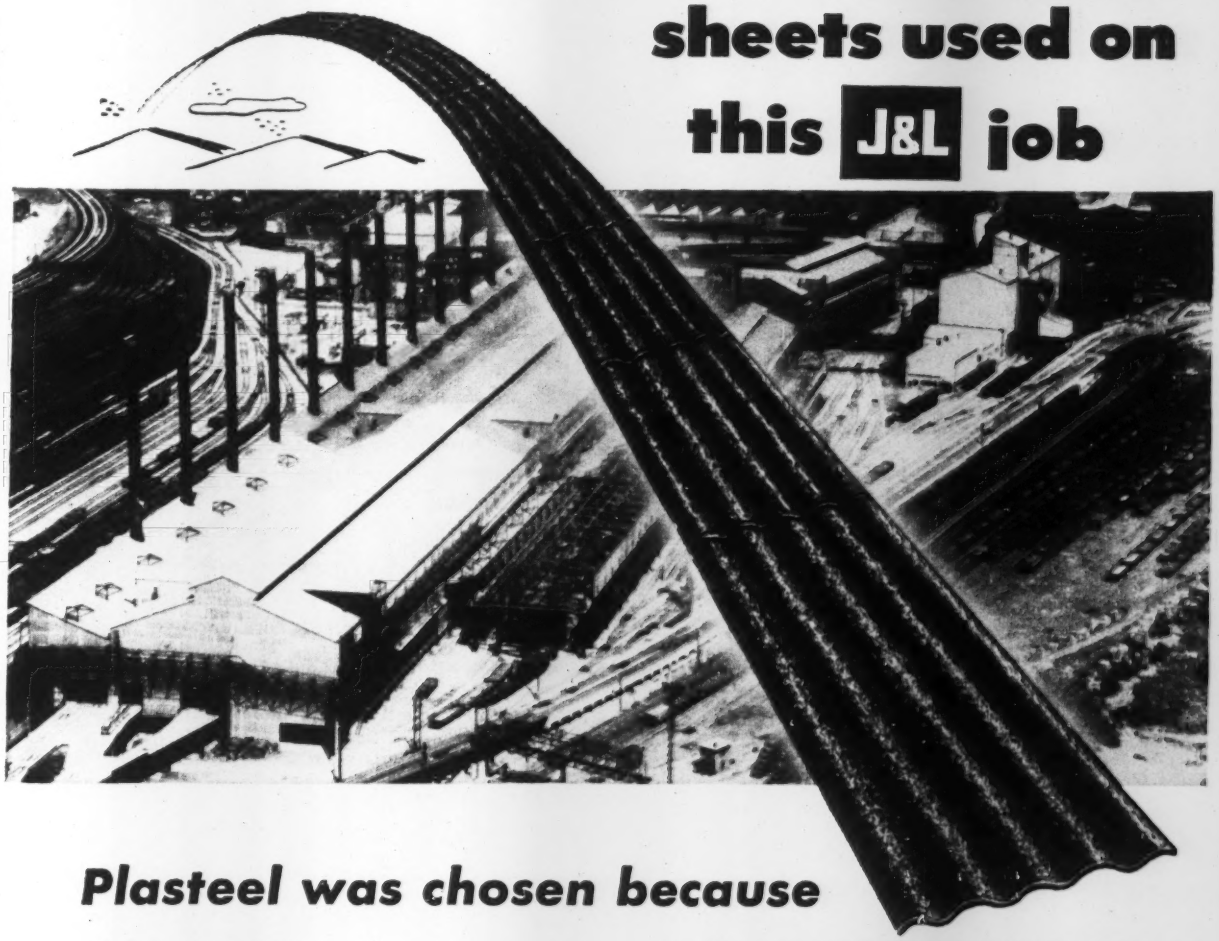
**"We do not believe that the concept of instrumentalities of interstate commerce should be so broadly construed as to encompass so remote an activity as the construction of county roads," the board said in a unanimous decision.**

## British Columbia forms toll road, bridge agency

British Columbia will form a Crown corporation to be known as the B. C. Toll Highways and Bridges Authority. It will have a borrowing capacity of $20 million and receive government subsidies equal to 2.5% of capital cost of each project payable annually.

The authority's first project will be a bridge across the Fraser River replacing a ferry service from Agassiz to Rosedale. This will provide a new highway access route to Vancouver from the south and east and expedite direct travel from main highways in the U. S. and eastern Canada.

# 40 miles of Plasteel sheets used on this J&L job



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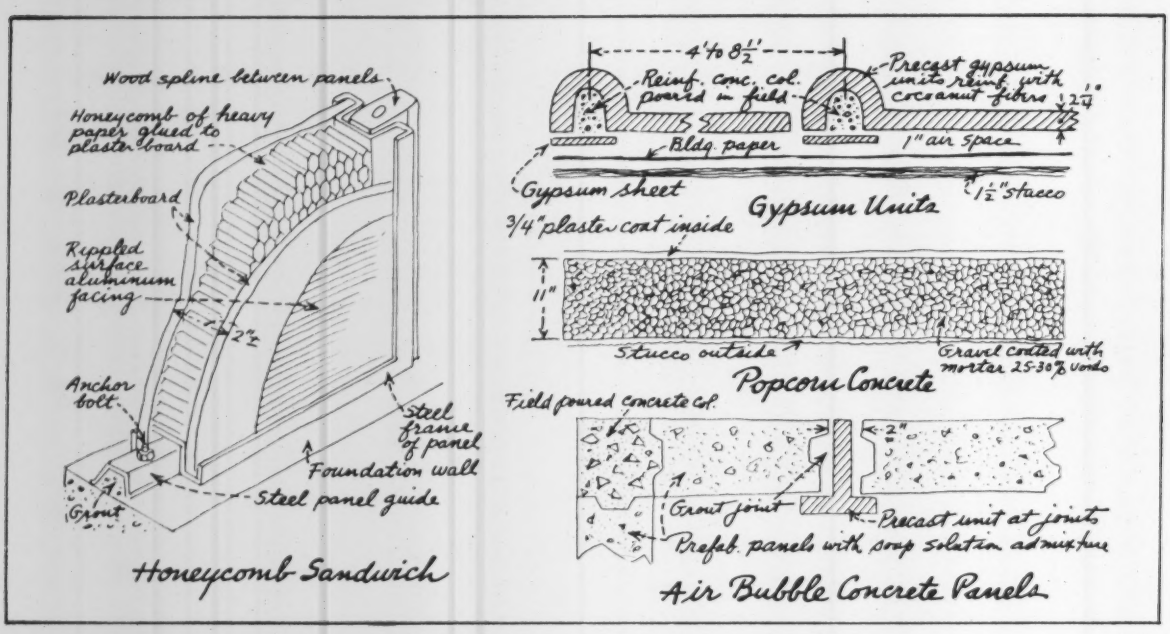



**Notebook sketches of some building wall types show one reason why . . .**

# Our airbases in France are different

## Novelties in design and construction introduced by the French contractors furnish our supervisory personnel with much to argue about and not a little to admire

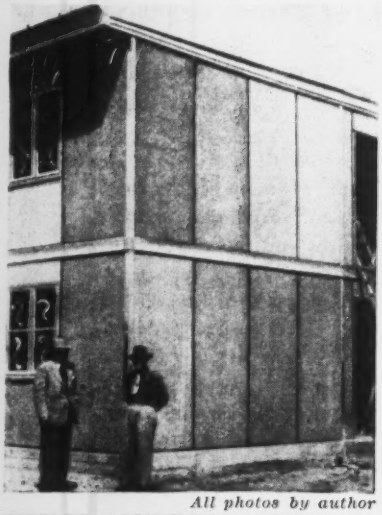
**Waldo G. Bowman**
Editor, Engineering News-Record

U. S. airbases, no matter where in the world they are located, have followed quite a stylized and standardized pattern as to the types of facilities provided.

But if this was a policy, it has been rudely challenged in France. Not only do some of the French airbase structures differ radically from anything on other U. S. bases, they differ among themselves from base to base. And although particularly pronounced among the barracks buildings, the differences extend to such facilities as runway drainage, and may also be detected in certain of the construction practices.

The basic reason why this interesting and singular situation exists in France is because in our agreement with that country—providing for the establishment of U. S. airbases on its soil—it was stipulated that French contractors should do the actual building. As a consequence, it is French ideas and practices that prevail, despite the fact that we have final authority to approve contracts and can exert some measure of construction supervision through the medium of French government engineers (as explained in a preceding article, "JCA—new command post for military construction in France" ENR June 11, 1953, p. 33).

One of the French practices is for contractors to submit bids on designs of their own choosing, so long as the resulting structure meets the general requirements. This practice they embraced in great numbers when submitting bids for barracks buildings, and only one French contractor bid low on our officially recommended design—a design incorporating a type of new and interesting precast concrete panel construction.



*All photos by author*

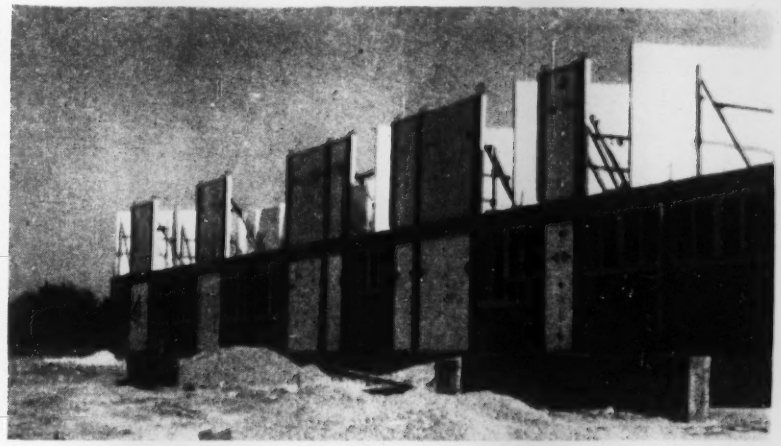
**RIPPLED ALUMINUM SHEET is the exterior of the honeycomb paper sandwich wall at Laon.**

So great indeed is the variety of facilities under construction that the entire program is pervaded with a laboratory atmosphere, giving rise to many arguments among the American supervisory personnel on the merits—and the opposite—of the different designs.

What they find to argue about is the subject of this article.

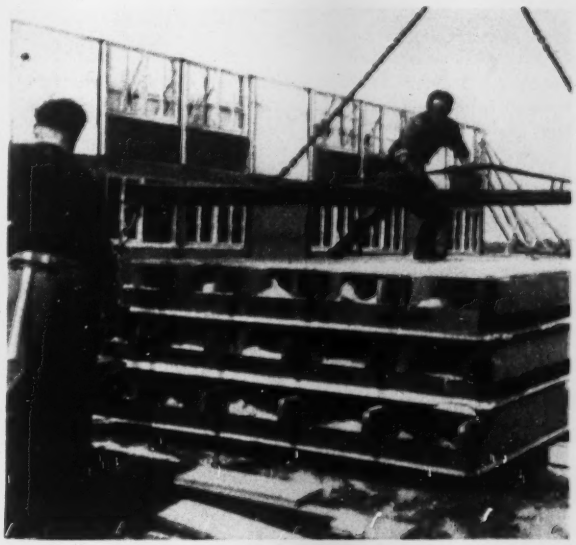
• **Honeycomb sandwich wall**—For the airbase at Couvron, near Laon, the barracks design selected includes a sandwich type panel wall with two features—it requires no field finish either outside or inside, and the insulation used is a machine-made paper honeycomb. The theory is that a multitude of separate airfaces is more effective than leaving the interior of the wall open, and in addition the honeycomb contributes useful rigidity

1—WALL UNIT is precast to double as column form.



2—TEMPORARILY BRACED in position, exterior and partition units will be joined in rigid assembly when column and beam concrete is poured.

3—EXTERIORS OF GYPSUM WALLS, once framing concrete is poured, are covered with building paper, wire mesh and stucco.



4—PREFABRICATED ROOF UNITS incorporate the joists, timber decking, a gypsum board ceiling and rock wool insulation.

to the wall, permitting it to carry considerable load.

In the makeup of the panel, the paper honeycomb is placed between plaster boards, one of which forms the finished inside surface. The outside plaster board is covered with rippled (that is, finely corrugated) aluminum sheet. The whole is enclosed in a steel frame. The overall thickness of the panel is 2 in.

These sandwich panels, which are of full-story height and about 4 ft. wide, are connected along the vertical edges by wood splines while the top and bottom incorporate steel guide members that bolt to the building frame and foundation. The joints are closed by aluminum strips.

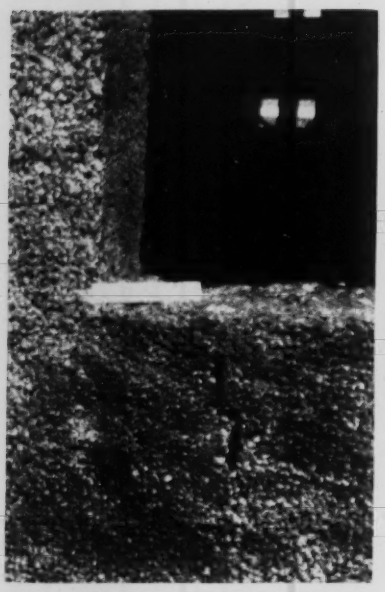
The buildings in which these walls are used have a light pressed-steel framework and prefabricated wood door and window frames. The roof decking is also wood, but covered with aluminum sheets which are crimped along the centerline and the edges for rigidity, the edge crimps, in addition, furnishing water-tight joints. The French building contractor at Laon is Samrapt & Brice.

• **Gypsum-unit walls**—The feature of the buildings at the Toul airbase is a job-shop-manufactured cocoanut-fiber-reinforced gypsum wall unit, one end of which is shaped to serve as the form for the field-poured concrete building columns. Gypsum units without the shaped ends and unreinforced are used for the interior partitions.

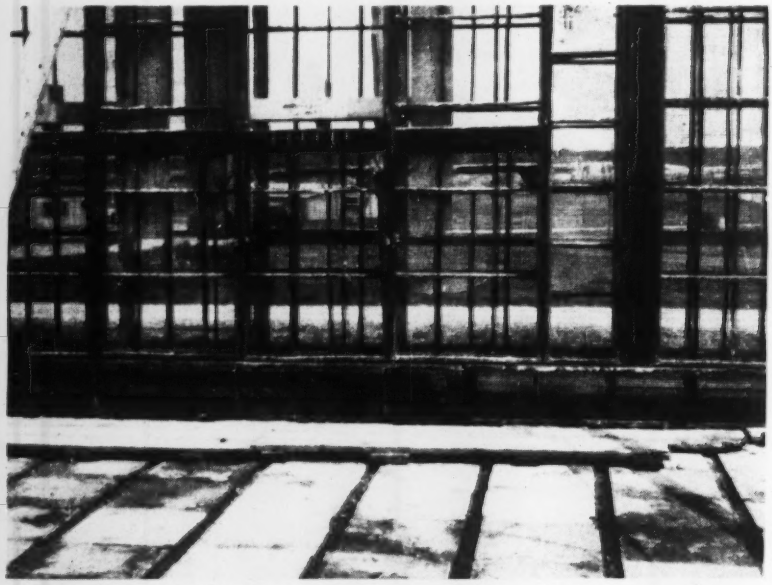
After the units—both partition and wall—are installed, the joints are filled with gypsum plaster, but otherwise, except for the outside of the wall units, the shop-finished surfaces are the final surfaces. As outside wall protection, the units are covered first with building paper, then wire mesh, and finally with stucco. The total thickness of the exterior wall is about 4¾ in., to which the gypsum unit contributes 2¾ in.

The units are manufactured in a shop set up at the airbase for the purpose. The gypsum is hand-mixed in boxes equipped with trunnions so that

## Popcorn concrete walls at Chaumont

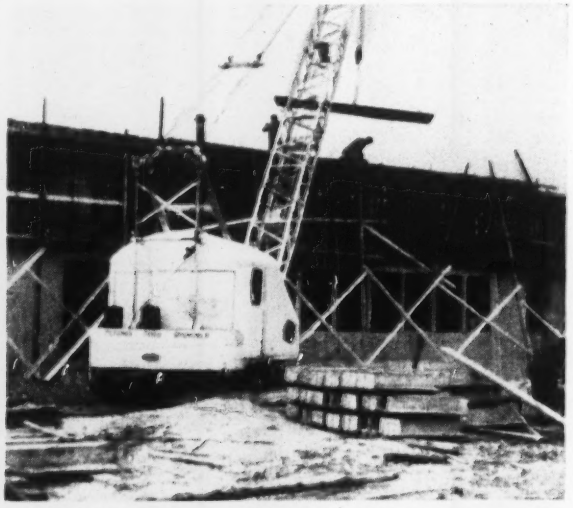


1—CALLED POPCORN CONCRETE because of its appearance, material contains gravel and cement but no fines.



2—FORMS YOU CAN SEE THROUGH are of wire mesh. In foreground, precast concrete plates on precast joists provide a working platform, later to be covered with the fill of the finished floor.

3—FULL-STORY POURS are possible because open forms and no excess water eliminate hydrostatic head.



4—PRECAST ROOF MEMBERS, lifted by crawler crane, provide a complete deck by virtue of wide flanges.

they can be picked up by an overhead trolley, moved to the casting tables and emptied into the forms.

The casting table surface is a steel plate, and the forms are wood strips. Wisps of cocoanut fibers tacked at intervals to the strips help to hold the panels in the forms, which are not removed until the panels are cured and ready to be installed. The casting tables are also on trunnions so that they can be tipped to transfer the panels to industrial rail cars for transport to the curing shed.

In another part of the same shop, the floor and roof units are manufactured. About 7 x 15 ft. in plan, the units consist of wood joists spaced 16 in. on centers, covered on the top by the wood flooring and on the bottom by a gypsum board which will be the finished ceiling. Rock wool insulation is also installed in the roof units. Steel angles are placed along the edges to provide a connection to the beams of the building frame.

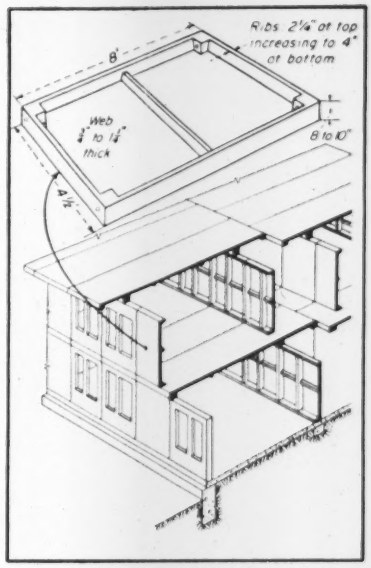
In the field, the gypsum panels, of full-story height (8 ft. 5 in.) and of varying widths, are set and held in position by simple timber braces attached to the floor. Next, reinforcing cages are dropped into the special shaped ends of the gypsum units (the column forms) and the concrete columns poured. Beams are poured along with the columns so that the entire assembly is tied together.

After the first story is finished in this manner, the operations are repeated for the second story. The floor and roof units are placed by truck cranes as the work progresses.

With the stucco exterior, white plaster interior and wood door and window frames, the completed buildings present a neat appearance. The French contractor is Cogetravoc, B.A.C.C.I.

• **"Popcorn" concrete**—The design and construction novelty of the French airbase program, which would probably be voted the most interesting and significant, is a new type concrete being used in the building walls at Chaumont. Consisting solely of washed river gravel and mortar, this special type of concrete originated in Great Britain. There it is given the prosaic but accurately descriptive name of "no-fines" concrete. The French call it "beton cavernaux," that is, porous concrete, since it contains from 25 to 30% voids. The American personnel, not to be outdone in this naming contest, refer to it as popcorn concrete in deference to its appearance.

By whatever name—and popcorn concrete is as easy to remember as any—this new concrete, as used at Chaumont, has many interesting properties. It is relatively light, weighing about 100 lb. per cu. ft. Its thermal and sound insulating values are equal to those of a brick cavity wall. And it resists penetration of moisture, as shown by tests and explained by the theory that gravity pulls the moisture downward through the voids with greater force than wind or capillary attraction can move it horizontally.




**CONCRETE PANEL and how it works to give frameless buildings at Chambley. The detail shows the single panel but double and longer ones are also used.**

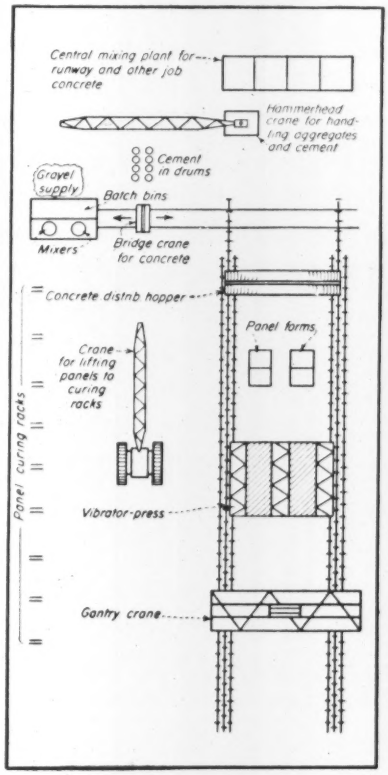
Tests show that moisture penetration seldom exceeds two times the diameter of the largest aggregate—but also dictate that drainage openings must be provided at the bottom of popcorn concrete walls to permit the moisture that does enter to escape.

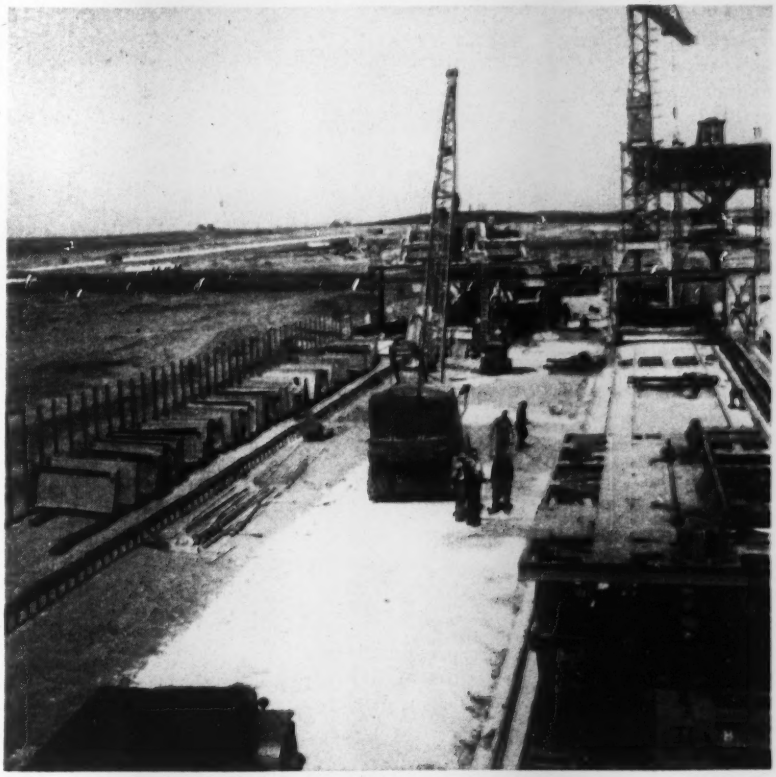
Another advantage of popcorn concrete is its low cement requirement (one part to eight parts of aggregate), which stems from the fact that best results are obtained when only enough mortar is used to just coat the aggregates. This low cement content is also conducive to small drying shrinkage—about 50% that of ordinary concrete. Moreover, half of the shrinkage takes place in the first ten days.

From a construction standpoint, popcorn concrete, because it is very evenly graded (¾ in. maximum size aggregate with no more than 10% less than ⅜ in.), and because it contains very little water (0.45 water-cement ratio by weight) offers the advantages of no segregation and no hydraulic head. This permits fast, deep pours and eliminates the need for tight, heavy forms.

Indeed, one of the striking characteristics of the Chaumont job is the use of forms made of wire mesh in light steel frames.

The popcorn concrete exterior walls of the Chaumont buildings (and the



**CASTING YARD at Chambley, in which novel 27-ton vibrator-press (foreground in photo) forms two panels at a time under combination of pressure and high speed vibration. One of two production lines is shown. Sketch is key to equipment in photo.**

# 3 SUPERIOR ACCESSORIES FOR more efficient handling of "TILT-UP" SLABS

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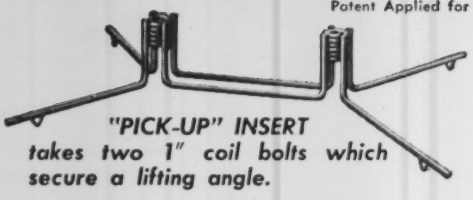
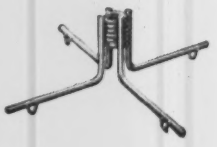
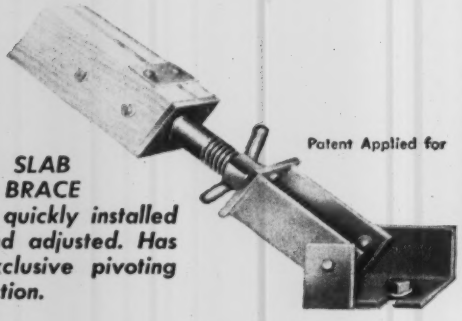


*"PICK-UP" INSERT takes two 1" coil bolts which secure a lifting angle.*

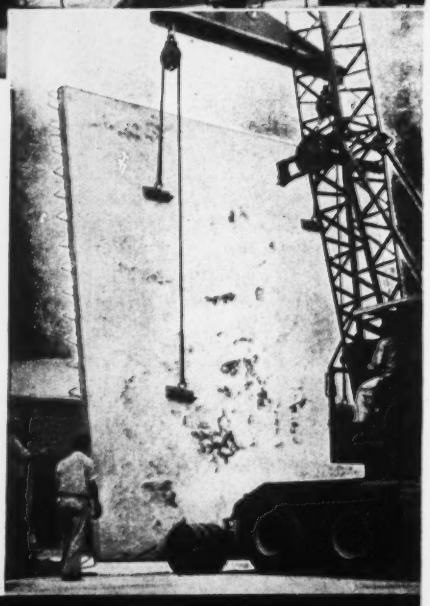
*"ANCHOR" INSERT in both the "Tilt-Up" slab and the floor slab provides anchorage for slab brace bolts.*





Patent Applied for

*SLAB BRACE is quickly installed and adjusted. Has exclusive pivoting action.*



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partitions when they are also of bearing type) are 11 in. thick. The exterior walls are covered on the outside with two coats of a 1:3 cement-sand mortar and plastered inside, while the partitions are plastered both sides. Non-bearing partition walls are of concrete block.

The concrete is mixed at a central plant and discharged into bottom-dump buckets which are transported to the site on flatbed trucks and emptied into the forms with a crawler crane. (Interestingly enough, the appearance of the concrete in the bucket is used to determine the correct amount of water in the mix; if no dripping occurs, the water content is right). The forms are struck lightly with wood mallets to cause some settlement of the concrete, but no other type of vibration is necessary for this concrete.

Because popcorn concrete has a 28-day compressive strength of only 600 psi and a shear strength of only 30 psi, it cannot, of course, be used for beams, which are made of normal concrete. Solid plate extensions of the mesh forms are used for this beam concrete which is poured right on top of the popcorn concrete at the second floor and roof levels. So far as the popcorn concrete is concerned, forms could be removed in 24 hr., but they are left in place for five to seven days to provide a support for the beam concrete.

A few of the Chaumont buildings contain columns which are of poured-in-place concrete like the main beam framing. All floor and roof joists, on the other hand, are precast in a plant on the base. The floor joists, of T-section, are installed in the buildings on 14-in. centers. Thin precast concrete plates, about 12 in. square and wire-reinforced, are then laid on the joist flanges to make a solid platform on which about 2 in. of concrete fill is poured to complete the floor after all other construction is finished.

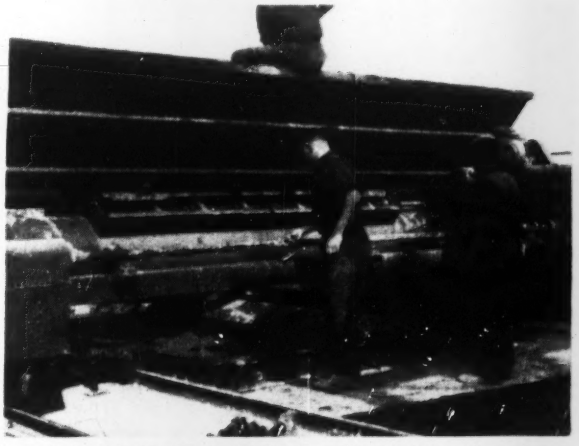
The roof joists are also of T-section, but with wider flanges so that when installed side by side they provide the platform on which an insulation layer made up of cinder concrete can be poured.

The French contractor on the Chaumont buildings is the Societe Generale d'Entreprises.

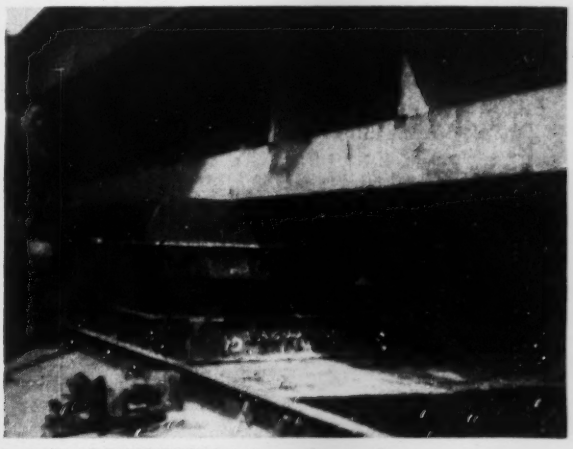
• **Precast concrete panels**—Variety in building types on the French airbases is, however, not alone a French contribution. One of the most interesting is the American design in precast concrete adopted from Navy practice in the U. S. and Guam, to which the French contractor has applied an unusual production technique.

The design—being used at the Chambley base—involves the use of flanged or ribbed panels of concrete, which are assembled into walls, floors and roof—no other framing being required. The American design had contemplated the use of standard-casting methods to make the panels, but the French contractor developed a huge 27-ton machine which, through a high speed vibrating action, literally presses the panels into shape in the forms. No name has been given

## How vibro-press concrete panels are produced at Chambley



1—TRAVELING HOPPER fills forms level full with concrete.



2—THE 27-TON PRESS is lowered onto the concrete.

3—PRESS IS RAISED after vibrating concrete at 12,000 v.p.m.

4—COMPLETED PANELS are troweled smooth.

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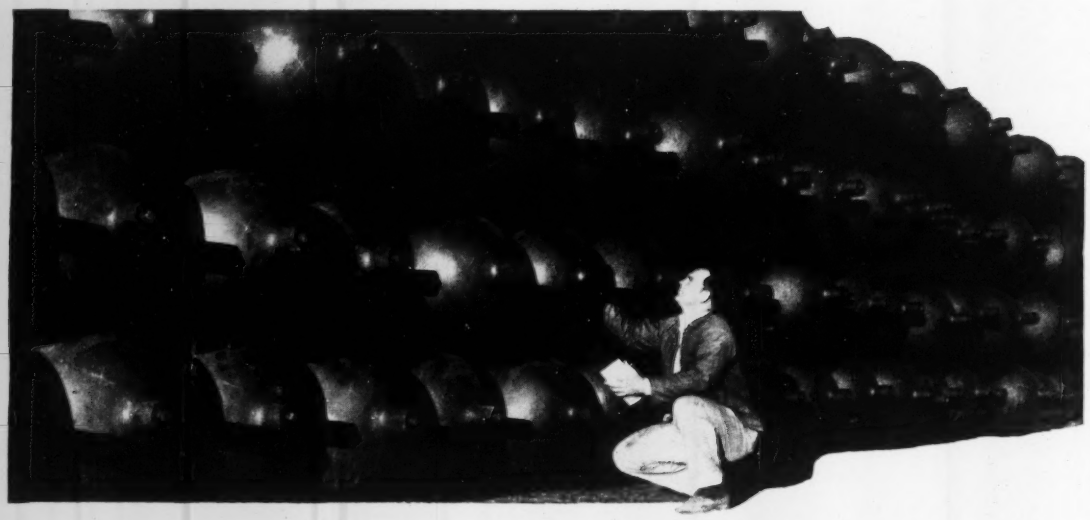

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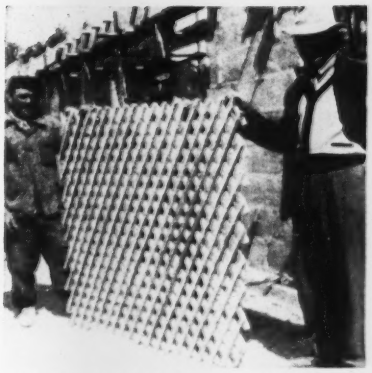
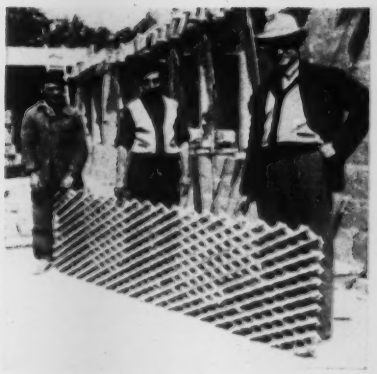



**ACCORDION FORM PANEL of wood strips is a handy gadget for floors and ceilings of some of the Toul buildings.**

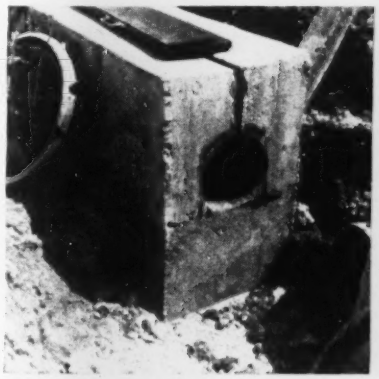
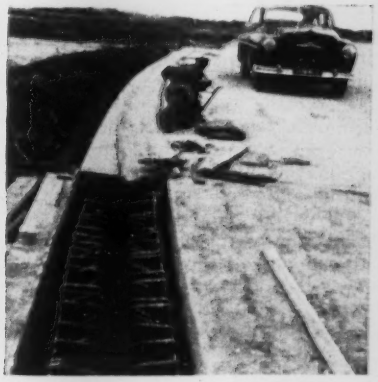
the process, but the product could well be called a vibro-pressed concrete panel.

This panel design has an interesting history: It was developed specifically for the French airbase program at the request of the Air Force that the standard buildings should fit the French labor and material market and should have the least possible impact on concurrent construction. At one stage the AF considered the use of prefab buildings for the standard design. It was later determined, however, that the expected magnitude and speed of the original AF program was such that no single French prefab design was available in sufficient quantity in the allotted time to serve as a standard for receiving and evaluating bids.

Basic considerations determining the standard design were that wood and steel would not be obtainable in the quantities needed during the time available, that even cement would be in short supply and that skilled construction workers might be scarce or would experience difficulty in constructing the buildings at the rate originally contemplated.

Since the early information was that no materials could be imported, concrete was deemed to be the best local product if the design could be such as to economize on cement. Also if the design could involve units that could be mass produced, field labor difficulties could be minimized and, as a result, construction would be speeded up.

Thus it was that the concrete panel design evolved and became the official design used as a standard for evaluating bids and competing with local proprietary types. That it was not adopted for all buildings at the bases as originally contemplated, despite considerable interest on the part of French contractors, was partly—perhaps in major degree—due to the fact that the theoretical economy and speed with the design were only possible if large single contracts were let. However, the volume of construction

**RUNWAY DRAINAGE on French bases is led to this structure at the edge of the pavement. Hole is formed by inflating rubber tube shown at right beyond reinforcing.**

was less than first anticipated, and in addition the French wanted as many contractors as possible to participate in the program.

In the first four bids, construction types other than the official design won out, except at Chambley. The contractor who is using the panel design has said he will lose money—because of the cost of the fabricating plant—but that he hopes to gain enough experience to make the use of the design pay on later civilian construction in France.

• **Details of the panels**—As shown in the accompanying illustration the panels consist of a thin plate—¾ to 1¼ in. depending on the type of service—having relatively heavy tapered ribs—8 to 10 in. deep, 2½ in. thick at the top and 4 in. at the bottom. In addition, the corners are increased in section to add rigidity and to provide good support for the bolts with which the panels are assembled. Wire mesh reinforcing is used in the webs, and rods in the ribs.

Developed on a 4-ft modular system, the panels are made in numerous sizes and double or single, as shown in the illustration. A usual double size is 8 x 9 ft, but 8 x 16-ft panels are used in the roof. The lightest panel weighs 1½ tons, the heaviest 3½ tons.

A total of 62 different size panels is required for the Chambley buildings, a number which the designers consider excessive for the program as finally established.

The plant, which the contractor has designed and assembled to manufacture the panels, is a model of mechanization and electrification. Two 500-ft production lines are provided. Each is equipped with three machines—a concrete distributing hopper, a vibrator-press unit and a gantry crane—all operating on rails set along the edges of a paved slab that serves as the casting surface, as shown in the accompanying drawing.

Pug-type mixers are used for the panel concrete, which is discharged into buckets suspended from the hook of a bridge crane that moves them out to where they can be emptied into the concrete distributing hopper on the production line. This hopper, equipped with a rotating bottom-dump door, moves under its own electric power to a set of empty forms into which it deposits its load. It then withdraws while the vibrator moves in to press out the panels. The vibrator, in turn, withdraws to permit hand finishers to trowel away any blemishes,

DRY CONCRETE is the rule on French bases. Note side-dump truck discharging into distributor (left) and tamping finisher (right).

and in about 10 minutes the gantry crane positions itself and removes the forms. After 8 hr. the panels have hardened enough to be lifted by a crawler crane that deposits them in curing racks that parallel the production lines. The two lines, when working one 12 hr shift, are capable of turning out 120 of the larger size panels per day and a proportionately greater number of smaller ones in the same amount of time.

• **Press is key**—The outstanding feature and key machine of the job is the vibrator-press. Resembling a gantry crane it is about 20 ft in plan dimensions and 15 ft high, and mounts a hoist on its top from which the vibrating-and-press unit is suspended. This unit, weighing 27 tons, consists essentially of the interior forms for the panels weighted with a framework of rolled beams. Lowered onto the concrete, which fills the outside forms anchored to the casting slab, the unit quickly presses the panel into shape under a combination of its weight and the action of 12,000 vibrations per minute maintained for 1¼ minutes.

The resulting concrete is unusually dense, and for the most part the steel forms leave it with a smooth surface. The principal difficulty experienced so far is an insufficiency of fine material in the river gravel used for aggregates —a common condition in France. This tends to cause honeycombing, and makes it difficult to get good concrete in the thin web sections of the panel. The concrete can be mixed unusually dry because of the casting technique used, which is advantageous for this type of work, but the cement is slow setting which has its disadvantages on mass production operations. The contract called for 19 buildings to be built of these panels, but the number has been reduced to 13 because of production difficulties. A total of about 5,000 panels is involved in the reduced program.

The precast concrete panel design was developed by Atlantic Engineers, a combination of Ammann & Whitney and Guy B. Panero, consulting engineering firms of New York, Capitol Engineering of Pittsburgh and Sherlock, Smith and Adams, architects and engineers of Atlanta. The French contractor on the Chambley job is Entreprises Metropolitaines et Coloniales.

• **Lightweight concrete panels**—At the other French airbases, building types are mostly conventional—concrete frames with concrete block walls or, for one story structures, concrete block bearing walls with wood trusses. An exception is the Evreux base where light precast panels made of a concrete containing a soap emulsion will be used. Incorporation of the emulsion creates a multitude of minute air bubbles in the concrete which reduces its weight to about 80 lb per cu ft. The panels, 4 ft wide, 13 ft high and 6 in thick will be set up in the wall, and grouted against precast T-sections inserted at the joints. Columns will be poured in place after the panels are set, the ends of the panels being used for two sides of the column form in the pouring.

• **Other novelties**—Beyond the various building types, numerous other novelties in devices or methods strange to U. S. practice are encountered on our French airbase work. There is, for example, the "accordion" form support. It is made of 1x1 in. wood strips in two layers arranged at an angle to one another. The two layers are nailed together at each point where strips of the two layers intersect, with the result that the assembly can be compressed or expanded into panels of a large variety of dimensions, as indicated in the accompanying illustrations. Thus a number of these standard panels (all of the same dimensions when closed) can be grouped to cover any size or shape of area. Their use permits a relatively thin plywood, resting on the "accordion," to be used for the bottom of the concrete forms.

Another novelty is the drainage structure used along the edges of the concrete runways on the bases. As shown in an accompanying illustration of the one at Dreux, it is a block of concrete about 15 in. wide and 30 in. deep pierced longitudinally by an 8-in. dia drainage hole over which is a continuous slit which admits the water from the surface. The hole is formed by pouring the concrete around a rubber tube inflated with air.

The tops of these drainage structures are of course flush with the surface of the 8¼-in thick runway slabs, which are also built by methods and machines not seen in America. For example, the concrete is transported in flat-bed trucks without any concern for segregation or hardening, since it is mixed very dry and with slow-setting cement. The trucks dump sideways into the hopper of a distributor carriage spanning the strip under construction. The hopper moves across this carriage distributing the concrete on the prepared subgrade which has also been covered with building paper to prevent the concrete from losing moisture.

The rear end of the distributor is equipped with a screed which leaves the concrete about 2 in too high. This permits two finishing machines fitted with revolving paddles at their front ends to exert a tamping action on the concrete while at the same time shaving it off to form level. Each finisher is also equipped with a plate vibrator at the rear. Final finishing is done by hand.

The pounding action that these finishers apply contributes to the density and strength of the concrete, but because the fresh concrete is so dry and the aggregate grading so open because of a deficiency of fines in French river gravel, the smoothness of surface that our Air Force desires is often difficult to attain. Too rough concrete at Toul, for example, is now being covered with a layer of asphalt.

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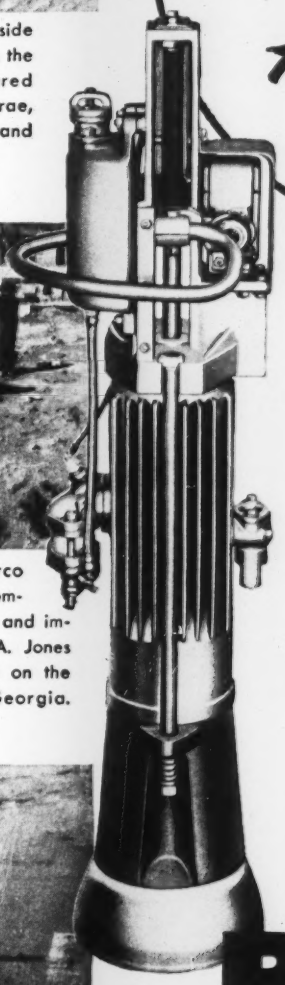
**NEW YORK DAM**—Exacting specifications for soil compaction on the Downesville Dam project of the New York City Board of Water Supply were easily met by Barco Rammers used by Carlo Bianchi & Company. (*Photo:* CONSTRUCTIONEER.)



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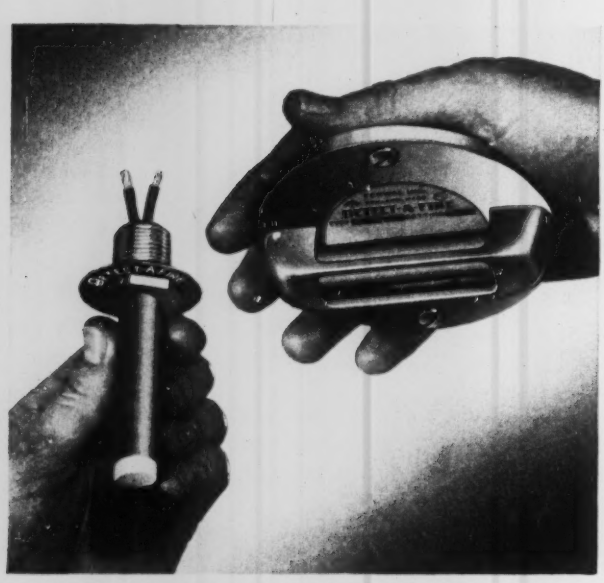

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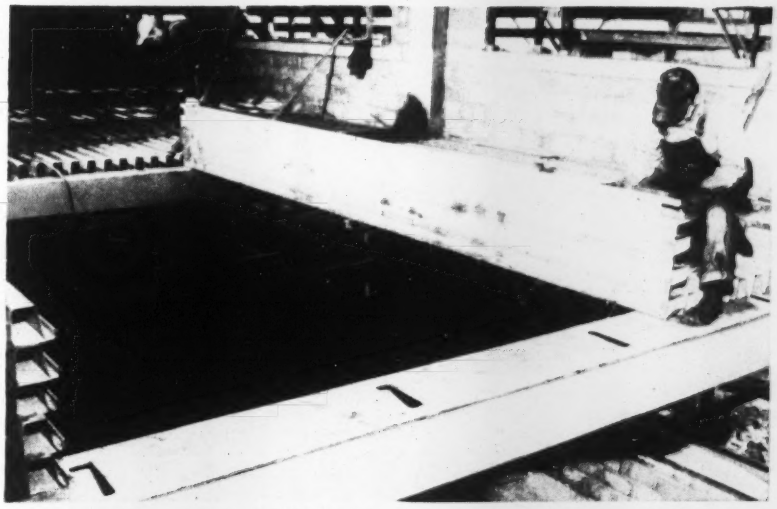

**SLOTS CUT IN HOLLOW BEAM will permit hot air supplied through hollow columns to be distributed through hollow steel floor units in a new Seattle building. Metal paste around 3x10-in. opening prevents air leakage.**

# Hollow members double as heat ducts in steel-frame office building

Hollow steel columns and beams and cells in the steel floor deck serve as heating ducts in a new Seattle, Wash., building. This eliminates the necessity of any exposed duct work, except, of course, for the steel beams that are exposed anyway. And there is some radiant heating effect resulting in more uniform heat distribution.

The building is a 2-story office structure that adjoins a new warehouse built for the Alaskan Copper and Brass Co. As it is located in an industrial area, the Seattle building code does not require that the steel members be fireproofed, and the lack of fireproofing makes possible radiant effect from the hollow units.

Steel floor decking was selected originally because of its suitability for wiring raceways. It also serves as a permanent form for the concrete floor slab and as the finished ceiling for the first floor.

Thus, hollow floor units were already available. And only three of each four cells are used for wiring (two electrical and one telephone). So, the designers investigated the possibility of using the every other fourth cell as a heating duct.

This led to design of hollow columns and beams. The columns are square, consisting of four 16-in. plates welded at the corners. Beams are formed of two 16-in. plates welded to two 12-in. channels.

This beam and column design costs more than use of ordinary rolled shapes. But the cost differential is made up because the hollow units can be merely painted instead of plastered. The designers admit that the exposed steel is not strictly fireproof but it is incombustible. They claim a permanent, easily maintained building has been obtained almost as cheaply as a wood frame building that would have been permitted by the Seattle Building Code.

Poor ground conditions and availability of a 2-story high reinforced concrete vault made it desirable to place the boiler installation on the roof. So hot air is blown down through the columns into the hollow beams.

Slots, 3 by 10 in., cut in the beams permit passage of the air into the hollow floor decking on 4-ft. centers. A metal paste applied between the bottom of the decking and the top of the beam provides an air-tight seal. And where metal decking units abut, they are taped.

Air escapes into the large first-floor workroom through ceiling diffusers. Exterior columns are used for cold air return. The second-floor area has conventional heating ducts because no hollow units were used in the roof.

Naturally, there is considerable heat loss as the air passes through the hollow units. But this has the effect of giving radiant heating from the columns, beams and the floor. This was included in the heating calculations. Hot air used has a maximum temperature of 110 F, so it is not so warm as to be damaging to the steel units.

The floor slab is formed by pouring concrete to a depth of 2½ in. over the inverted, hollow floor units. Elimination of forms saved about half the cost of the metal floor units. With positive reinforcing near the bottom of the hollow unit channels and negative reinforcing over the beams, the effect is a "T" floor slab.

The ceiling under the first-floor is merely painted steel floor decking. For appearance sake, the joints were spackled and a regular groove formed before painting.

The building was designed by Marshall, Barr & Associates, consulting engineers, Seattle. Mechanical engineer associate was C. A. Pangborn. H. H. Robertson Co. fabricated the hollow steel floor units.

**STEEL FLOOR DECK also serves as bottom form for concrete floor slab. Positive reinforcing near bottom of grooves and negative reinforcing over the beams provide for continuity of the floor slab.**

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**NONE OF THE USUAL signs of slipperiness such as excess asphalt are evident on this bituminous pavement of State Route 9 in West Virginia, yet it is slippery because of polished aggregates.**

# Danger—Slippery when wet

**C. E. Larson**
Materials Engineer
U. S. Bureau of Public Roads
Hagerstown, Md.

The high accident toll on the highways is making engineers increasingly safety conscious. Slipperiness of pavement surfaces, both portland-cement concrete and bituminous types, is one major contributing factor causing accidents.

A review of available literature on this subject reveals the fact that while there is much published information on measurement of the skid resistance of various types of pavement, about the effect of oil slicks and and bleeding of bitumen to the surface of bituminous pavements, and about the effect of various kinds of finishing operations for portland-cement concrete surfaces, there is practically nothing about the effect of aggregate polishing in either bituminous or concrete pavements.

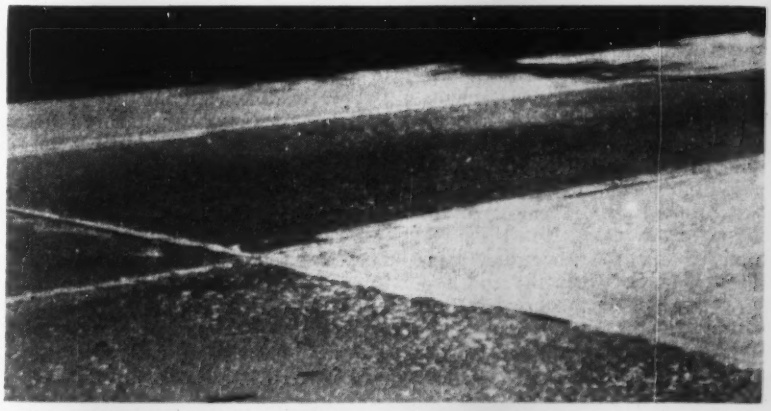
In concrete pavements, experience has shown that certain limestones when used for both fine and coarse aggregates result in a surface which, under the action of traffic, becomes highly polished. This surface when wet has proved very slippery and considerable extra work has been required to correct the dangerous condition. It has also been found that bituminous surfaces containing fine and coarse aggregates of these same limestones produced slippery surfaces, not because of excess asphalt but because of a polishing of the aggregate under heavy traffic.

• **Concrete pavement**—The slippery condition of a concrete pavement due to the use of limestone sand was first noted by the writer in Pennsylvania. The pavement in question is located on U. S. Route 422 and extends 3 miles to the west from the city of Butler. It was laid in 1939 and several fatal accidents that were attributed to the slippery condition caused the state in 1940 to apply a treatment of tar and slag chips to increase the skid resistance. Before the treatment was applied the state ran skid tests at 20 and 30 miles per hour on the limestone-sand pavement and on a nearby comparable pavement in which a natural silica sand was used. The tests showed that when dry the two pavements had practically the same skid resistance but that the concrete containing limestone sand was much more dangerous when wet. These skid tests showed that stopping distances were about twice as long on the limestone-sand concrete pavement as on the silica-sand concrete.

In Pennsylvania, on U. S. Routes 11 and 15 in Wormleysburg Boro, directly across the Susquehanna River from Harrisburg, there is an excellent example. This is a three-lane concrete pavement built in 1937. Alternate sections were built with limestone sand and silica sand. As the type of fine aggregate was the only variable in the alternate sections, the difference in the condition of the surface is unquestionably due to the fine aggregate.

Both fine aggregates produced durable concrete. However, the polished surface of the limestone-sand portion is objectionable, and at a traffic light near the center of the project, where traffic decelerates rapidly, it became necessary to cover the concrete with a bituminous surface treatment for about 300 ft. in either direction. The limestone-sand portion of the concrete pavement can easily be detected both by its soapy feeling to the hand and by its glossy appearance to the eye.

Although this pavement is not as slick and dangerous as others observed, it is a valuable example be-



**TWO TYPES OF AGGREGATE were used in this concrete pavement on U. S. Route 11 near Harrisburg, Pa. The far slab and the one at the right center have a luster indicating slipperiness. They contain sand manufactured from limestone. The other three slabs that appear dark are not slippery. They contain a natural silica sand.**

cause the state was foresighted in providing enough control sections using natural silica sand to indicate very definitely that the limestone fine aggregate caused the trouble.

On U.S. Route 20 in Ohio, beginning at the west end of Fremont and extending toward Toledo, is a four-mile section of portland-cement concrete built in 1947. At the time that it was observed in 1952, the portion near the city limits of Fremont where eastbound traffic decelerates and westbound accelerates had been polished to a dangerously slick condition.

• **Bituminous pavements**—The relation between slipperiness and the polishing of the aggregates is not as clearly established for bituminous concrete surfaces as for portland-cement concrete because many slippery surfaces are due to an excess of asphalt. However, engineers in several states have concluded that such a relationship exists.

In Pennsylvania, for example, engineers of the highway department noted that the slipperiness seemed concentrated in several areas and that these areas coincided with certain sources of limestone aggregates. In Highway Research Report No. 5B on Skid Resistance Measurements of Virginia Pavements, Shelbourne and Sheppe describe a certain slippery surface and state, "Polishing of the limestone aggregate of the mix may be a contributing factor."

Surfaces of bituminous concrete which have become slippery as a result of polishing of the aggregate are much more widespread than those of portland-cement concrete because limestone sand is more commonly used as fine aggregate in bituminous concrete than in portland-cement concrete. Nevertheless, because bituminous concrete surfaces can become slippery from causes other than polishing of aggregate, it has been more difficult definitely to relate the slipperiness with the limestone sand.

In the District of Columbia, certain bituminous concrete pavements, one on Adams Mill Road at Klingle Road and one on 16th Street, were found to be slippery, so much so that portions had to be given a surface treatment of slag chips. An inquiry as to the materials in these two pavements revealed that they were built at a time when the specifications for the district required the use of stone sand. Asphalt pavements using the aggregate mixture of 100 percent limestone were very durable and stable, but unfortunately, under years of heavy traffic they are becoming slick especially where traffic is subject to starting and stopping because of traffic lights or stop signs.

In examining pavements in the District of Columbia which were built since the specification permitted natural silica sand, no such slickness was observed.

Field observations of bituminous surfaces frequently will indicate that any slipperiness is due to a combination of factors, such as polishing of aggregates, excess of asphalt, oil drippings, and other causes. Naturally the most dangerous condition can be expected where more than one factor is of importance.

Areas where considerable slipperiness due to polishing has been observed in bituminous concrete pavements are: central and western Pennsylvania, central and northern Ohio, southern and eastern West Virginia, the ridge and valley areas of western Virginia, and central and eastern Maryland. These are all limestone areas.

In the area north of Baltimore it appears that a stone described as an altered trap rock containing serpentine has produced some slippery surfaces quite clearly due to polishing. It may well be that other areas have different aggregates that polish and result in slippery surfaces.

• **Correction of slipperiness**—Considerable research has been done in measuring the initial skid resistance of portland-cement concrete caused by brooming, burlap dragging, or other methods of finishing, and on bituminous concrete due to size of aggregates, density of the final mix, and other factors affecting surface texture. Less has been done in determining the causes of polishing or the amount of traffic necessary to produce a change from a new non-skid surface to a slippery polished surface. Under modern traffic this change may take anywhere from a few months to 5 or 10 years, and on very low traffic roads possibly it may never be a problem.

Some investigations are being made in the laboratories of the Bureau of Public Roads to determine the effect of aggregate characteristics on the development of slippery surfaces. Preliminary indications are that, in the case of limestone, the silica content is a major factor.

Field observations have been handicapped by the lack of a rapid and safe means of measuring the coefficients of friction of various surfaces. The trailer device used by Prof. Ralph Moyer and described in the Highway Research Board Bulletin No. 37 "Roughness and Skid Resistance" appears to be the best means of carrying on further measurement of slippery surfaces. Where a trailer such as that used by Prof. Moyer is not available, a quick determination can be made by the locked wheel test described by Mr. Shelbourne in his report, to which reference has already been made.

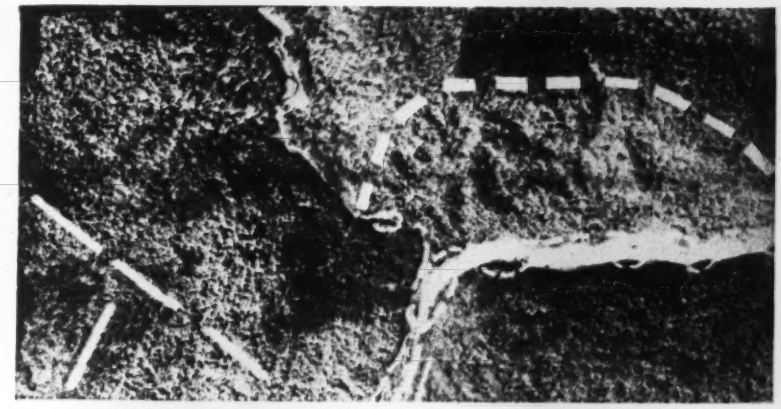
Until further research is done on the properties of materials that cause polishing, the correction or prevention of this slipperiness should be based on service records of those materials which are now producing such dangerous surfaces under traffic. These polished surfaces appear earliest where sand and cinders are used on steep grades and sharp curves in ice and snow control. Later they appear on level sections of road. Using the old adage that an ounce of prevention is worth a pound of cure, an attempt should be made to prevent this slipperiness through an improved selection of aggregates for wearing surfaces.

Pennsylvania is improving surfaces of portland-cement concrete by prohibiting the use of stone sand. Surfaces of bituminous concrete are similarly improved by prohibiting the use of fine aggregate manufactured from limestone under some circumstances. In the case of bituminous concrete the restriction, in effect, requires the use of slag sand or natural silica sand for the fine aggregate. West Virginia also is prohibiting the use of limestone sand in a bituminous concrete pavement to be laid in an area where polishing is common. In West Virginia, the economics of supply probably will result in the use of a silica sand.

It has been reported that Virginia will soon be trying some bituminous concrete using a requirement that 50 percent of the fine aggregate shall be silica sand, granite, trap, or slag screenings. Such a requirement should improve the skid resistance properties of the surface.

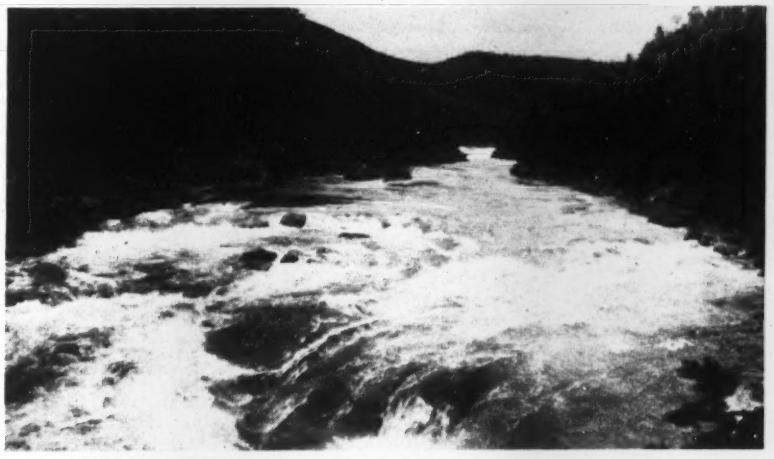
It is believed that more highway engineers must re-examine their existing portland-cement-concrete and bituminous-concrete surfaces for slipperiness due to polishing of aggregate. In areas where polishing does exist, such dangerous conditions should be prevented on future construction by a better choice of available aggregates for the wearing surface.

It is believed that considerable improvement can be made in all cases by prohibiting the use of a fine aggregate made from stone that polishes. This may be done more directly by requiring the use of a silica sand for portland-cement concrete pavements, and either silica sand or slag sand for bituminous concrete wearing surfaces. There may be other substitutes that will retain a non-skid surface under traffic.



CAMERA SEES ALL—and specialists studying through stereoscope interpret picture.

# Air photos spot fill



TERRAIN is rugged and rocky, defying ground reconnaissance.

# for dam in wilderness

Four and a half million cubic yards of impervious fill were found in the rocky forests 300 miles northeast of Quebec, Canada, by prospectors who never left Ithaca, N. Y., to do the job. They did it with air photos.

In what they claim was a pioneer application of this use of aerial photograph analysis to a dam construction project (the practice is prevalent in highway work) the fill was found within two miles of the damsite. It had been thought highly improbable that such a deposit could exist in the extensive rock area.

D. J. Belcher & Associates of Ithaca, N. Y., made the photo analysis for H. G. Acres & Company, Ltd., of Canada. The Acres firm is building the $200-million Bersimis River power project for Hydro-Quebec.

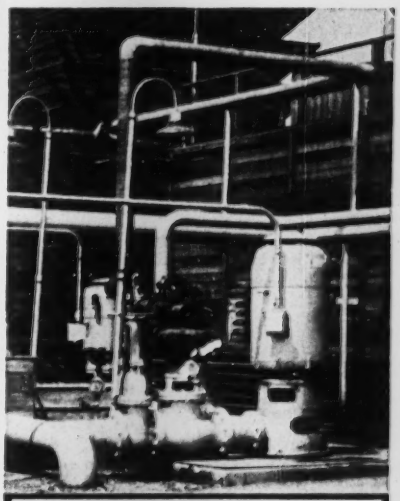
No known source of impervious fill existed when the photo-analysis experts were engaged. Their find obviated an exhaustive field investigation in the heavily forested region.

Working with 1:32,500 scale pictures taken by Photographic Surveys Corp., Ltd., of Canada, the analysts detected a distinct type of erosion that occurs only in materials containing an appreciable amount of clay. The area (circled with dashed lines in the photo above) showed faint parallel streaks; these are seen as gullies under stereoscopic examination. By photogrammetric means the extent of the deposit found was determined to be 4,500,000 cu yd.

Analysts also located gravel deposits for access roads and for concrete by their study of air photos.

The photographic investigation was completed without anyone from Belcher's firm visiting the site. Since then, they have confirmed the investigation's findings with sampling recently completed.

Critical Jobs are Routine for JOHNSTON PUMPS . . .



Take Cooling Towers *for example*

Three Johnston Pumps were selected for this cooling tower job by the firm which engineered and constructed this large oil refinery in Oklahoma, because . . .

**Large savings were effected on installation costs. Higher efficiency meant lower operating costs. The flat horsepower curve of the Johnston vertical turbine pump allows operation against throttled discharge or reduced heads without overloading the driver. Vertical, hydraulically balanced design eliminates radial thrust and consequent bearing wear, thus cutting maintenance costs to the bone.**

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# WEATHER

THE 30-DAY FORECAST of the U. S. Weather Bureau for the period from mid-October to mid-November calls for temperatures to average below seasonal normals from the Great Lakes Region eastward to the Atlantic coast and also in the far Southwest. Above normal temperatures are expected in the Gulf and South Atlantic States as well as over most of the Northwest quarter of the country.

Drought-relieving rains are expected to result in greater than normal precipitation in a broad belt extending from Texas northeastward through the Ohio Valley to New England, but not until about the end of October. Somewhat more rain than normal is also expected over the Southwest. Less than normal amounts are indicated for the Northern Plains, Northern Rocky Mountain and Southeast sections of the nation.

## OBSERVED PRECIPITATION AND TEMPERATURE IN 20 CITIES, COMPARED WITH NORMALS

| | Precipitation, inches | | | | Temperature, degrees F. | | | |
|---|---|---|---|---|---|---|---|---|
| | Sept. 1953 | Departure fr. normal | 9 mos. 1953 | Departure fr. normal | Mean Sept. '53 | Departure fr. normal | Av. daily Maximum | Av. daily Minimum |
| Atlanta | 7.32 | +4.36 | 42.14 | +1.94 | 72.3 | −2.01 | 82.2 | 62.3 |
| Baltimore | 3.72 | +0.26 | 38.95 | +8.25 | 70.4 | +1.8 | 79.1 | 61.6 |
| Birmingham | 2.98 | +0.27 | 39.09 | −2.34 | 74.0 | −0.8 | 87.1 | 61.0 |
| Boston | 2.50 | −0.49 | 40.07 | +10.96 | 66.3 | +2.0 | 75.0 | 57.6 |
| Chicago | 2.02 | −1.21 | 24.03 | −1.85 | 67.6 | +2.0 | 79.8 | 55.3 |
| Cincinnati | 0.72 | −2.16 | 23.29 | −7.96 | 69.9 | +1.0 | 83.4 | 56.4 |
| Cleveland | 1.57 | −1.56 | 25.94 | +1.23 | 65.6 | +.01 | 77.9 | 53.2 |
| Dallas | 0.93 | −1.78 | 17.63 | −9.07 | 79.4 | +0.5 | 93.8 | 64.9 |
| Denver | 0.46 | −0.47 | 10.54 | −0.67 | 67.7 | +4.0 | 81.3 | 54.0 |
| Detroit | 1.80 | −9.8 | 21.05 | −3.31 | 64.7 | +13.0 | 76.3 | 53.0 |
| Kansas City | 1.56 | −2.29 | 16.36 | −12.35 | 74.1 | +3.5 | 86.8 | 61.3 |
| Los Angeles | T | −0.27 | 2.89 | −7.01 | 70.2 | +0.8 | 80.0 | 60.0 |
| Minneapolis | 0.55 | −2.30 | 24.46 | +3.75 | 66.1 | −0.1 | 73.7 | 50.5 |
| New Orleans | 2.10 | −3.72 | 51.60 | +0.31 | 80.9 | +0.6 | 88.4 | 73.3 |
| New York | 1.61 | −2.06 | 35.92 | +3.09 | 69.1 | +1.8 | 76.6 | 61.6 |
| Philadelphia | 1.12 | −2.31 | 40.23 | +7.34 | 70.9 | +1.6 | 79.8 | 62.0 |
| Pittsburgh | 2.50 | −0.27 | 28.38 | −0.61 | 67.6 | +0.3 | 78.6 | 56.6 |
| St. Louis | 0.55 | −2.83 | 18.79 | −11.14 | 73.7 | +2.3 | 85.0 | 62.3 |
| San Francisco | T | −0.13 | 9.61 | −3.49 | 62.5 | +0.9 | 68.0 | 57.0 |
| Seattle | 2.85 | +1.29 | 25.26 | +6.22 | 62.1 | +1.1 | 69.9 | 54.2 |

T = less than 0.005 inches.

## PRECIPITATION RANGE IN 20 CITIES, IN INCHES

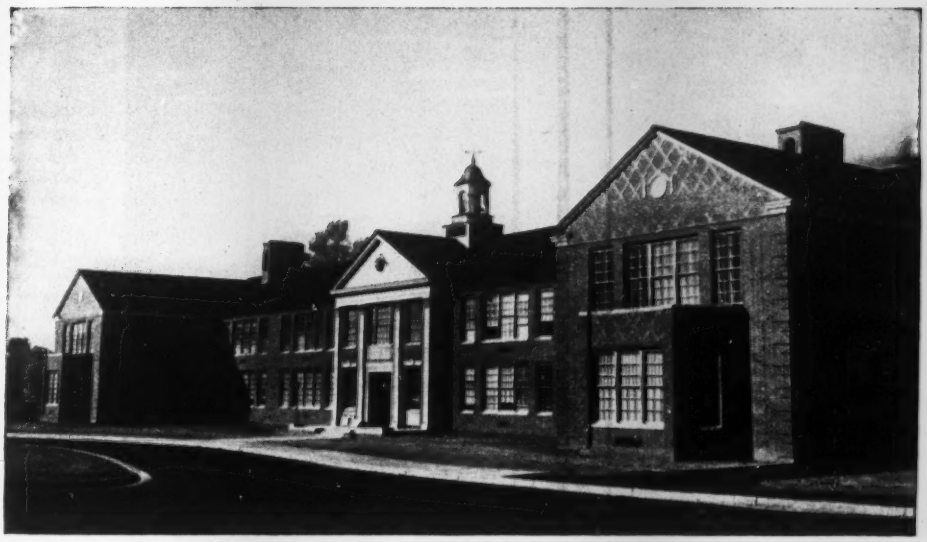
Table shows range observed 33.3% of time. Rainfall heavier 33.3% of time, lighter 33.3% of time.
Computed by U. S. Weather Bureau (based on historical records of actual precipitation)

| City | October | Mid. Oct.-Mid. Nov. | Nov. | Mid. Nov.-Mid. Dec. | Dec. | Mid. Dec.-Mid. Jan. | Jan. | Mid. Jan.-Mid. Feb. | February | Mid. Feb.-Mid. Mar. | March | Mid. Mar.-Mid. Apr. | April | Mid. Apr.-Mid. May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | 1.59/2.90 | 2.01/3.38 | 2.43/3.85 | 2.94/4.58 | 3.46/5.30 | 3.42/5.32 | 3.39/5.33 | 3.38/5.50 | 3.36/5.67 | 3.40/6.00 | 3.43/6.33 | 3.12/5.72 | 2.82/5.10 | 2.48/4.72 |
| Baltimore | 1.66/3.77 | 1.61/3.45 | 1.56/3.12 | 1.99/3.43 | 2.41/3.73 | 2.59/3.85 | 2.77/3.96 | 2.57/3.68 | 2.36/3.39 | 2.48/3.76 | 2.59/4.13 | 2.59/4.17 | 2.58/4.20 | 2.76/4.30 |
| Birmingham | 1.52/2.58 | 1.84/3.24 | 2.17/3.91 | 2.94/4.83 | 3.71/5.75 | 3.75/5.58 | 3.75/5.40 | 3.61/5.64 | 3.47/5.88 | 4.18/6.26 | 4.48/6.63 | 3.91/5.85 | 2.94/5.07 | 3.05/4.81 |
| Boston | 2.49/4.07 | 2.62/4.26 | 2.74/4.46 | 2.82/4.33 | 2.89/4.20 | 2.83/4.12 | 2.77/4.05 | 2.70/3.99 | 2.64/3.93 | 2.79/4.22 | 2.94/4.50 | 2.66/4.45 | 2.39/4.40 | 2.58/4.29 |
| Chicago | 1.59/3.10 | 1.59/2.95 | 1.59/2.80 | 1.46/2.62 | 1.32/2.45 | 1.30/2.28 | 1.29/2.10 | 1.40/2.16 | 1.52/2.23 | 1.76/2.67 | 1.99/3.11 | 2.09/3.12 | 2.19/3.13 | 2.24/3.56 |
| Cincinnati | 1.49/2.90 | 1.74/3.28 | 1.99/3.67 | 2.14/3.48 | 2.29/3.28 | 2.32/3.54 | 2.34/3.80 | 2.07/3.40 | 1.80/3.00 | 2.10/3.64 | 2.39/4.29 | 2.66/3.94 | 2.34/3.60 | 2.42/3.85 |
| Cleveland | 1.75/3.16 | 1.79/2.97 | 1.82/2.77 | 1.76/2.66 | 1.70/2.56 | 1.65/2.58 | 1.59/2.60 | 1.55/252 | 1.51/2.43 | 1.81/2.71 | 2.10/2.98 | 2.15/3.13 | 2.20/3.27 | 2.27/3.38 |
| Dallas | 1.55/3.50 | 1.60/3.25 | 1.64/3.00 | 1.36/3.00 | 1.09/3.00 | 1.24/3.05 | 1.39/3.10 | 1.49/2.70 | 1.59/2.30 | 1.96/3.08 | 2.34/3.86 | 2.50/4.68 | 2.66/5.50 | 2.82/5.38 |
| Denver | 0.62/1.10 | 0.46/0.89 | 0.29/0.68 | 0.34/0.72 | 0.39/0.77 | 0.28/0.64 | 0.18/0.50 | 0.26/0.54 | 0.34/0.58 | 0.46/0.84 | 0.59/1.10 | 0.96/1.75 | 1.34/2.40 | 1.48/2.65 |
| Detroit | 1.63/2.60 | 1.70/2.66 | 1.77/2.73 | 1.70/2.66 | 1.64/2.60 | 1.63/2.50 | 1.62/2.40 | 1.56/2.45 | 1.51/2.50 | 2.14/2.64 | 1.77/2.78 | 1.78/2.76 | 1.79/2.73 | 2.14/3.20 |
| Kansas City | 1.69/4.07 | 1.48/3.21 | 1.27/3.25 | 1.02/1.95 | 0.77/1.55 | 0.68/1.48 | 0.59/1.42 | 0.80/1.66 | 0.99/1.90 | 1.29/2.40 | 1.59/2.90 | 1.99/3.15 | 2.39/3.40 | 2.82/4.40 |
| Los Angeles | 0.15/0.60 | 0.20/0.95 | 0.26/1.30 | 0.70/2.00 | 1.14/2.70 | 1.19/3.00 | 1.24/3.30 | 1.12/3.25 | 0.99/3.20 | 1.06/3.08 | 1.13/2.95 | 0.68/1.92 | 0.22/0.90 | 0.14/0.62 |
| Minneapolis | 1.29/2.45 | 0.98/2.01 | 0.67/1.57 | 0.62/1.44 | 0.57/1.30 | 0.60/1.19 | 0.64/1.08 | 0.58/1.08 | 0.52/1.08 | 0.75/1.38 | 0.98/1.67 | 1.34/2.14 | 1.69/2.60 | 2.16/3.29 |
| New Orleans | 1.99/4.12 | 2.34/4.40 | 2.69/4.67 | 2.96/4.92 | 3.24/5.17 | 3.36/5.28 | 3.49/5.40 | 3.14/5.05 | 2.79/4.70 | 3.00/5.00 | 3.22/5.30 | 2.94/5.15 | 2.66/5.00 | 2.65/5.12 |
| New York | 2.09/4.13 | 2.15/4.04 | 2.21/3.95 | 2.42/3.86 | 2.64/3.77 | 2.55/3.71 | 2.46/3.65 | 2.41/3.88 | 2.36/4.10 | 2.35/4.08 | 2.34/4.05 | 2.40/3.92 | 2.47/3.78 | 2.50/3.90 |
| Philadelphia | 1.99/3.80 | 2.18/3.65 | 2.36/3.50 | 2.50/3.70 | 2.64/3.90 | 2.60/3.80 | 2.57/3.70 | 2.57/3.69 | 2.57/3.68 | 2.60/3.84 | 2.62/4.00 | 2.56/3.91 | 2.49/3.82 | 2.44/4.11 |
| Pittsburgh | 2.09/3.20 | 1.96/2.96 | 1.84/2.92 | 1.96/3.00 | 2.09/3.27 | 2.21/3.20 | 2.14/3.13 | 1.96/2.98 | 1.77/2.83 | 2.06/3.15 | 2.34/3.47 | 2.32/3.44 | 2.29/3.40 | 2.39/3.58 |
| St. Louis | 1.69/3.25 | 1.78/3.28 | 1.86/3.30 | 1.70/3.05 | 1.64/2.80 | 1.52/2.75 | 1.39/2.70 | 1.48/2.80 | 1.57/2.90 | 1.92/3.42 | 2.27/3.95 | 2.43/3.88 | 2.59/4.10 | 2.86/4.65 |
| San Francisco | 0.19/3.20 | 1.12/2.25 | 1.04/3.30 | 1.62/4.28 | 2.19/5.25 | 2.34/5.12 | 2.49/5.00 | 2.24/4.86 | 1.99/4.71 | 1.96/4.13 | 1.94/3.55 | 1.30/2.54 | 0.67/1.54 | 0.44/1.12 |
| Seattle | 2.32/3.50 | 3.07/4.55 | 3.82/5.60 | 4.00/5.74 | 4.17/5.89 | 4.14/5.57 | 4.12/5.25 | 3.34/4.92 | 2.55/4.60 | 2.18/4.02 | 1.81/3.43 | 1.72/3.16 | 1.64/2.90 | 1.53/2.45 |

## MEAN TEMPERATURE RANGE FOR 20 CITIES, IN DEGREES F.

Table shows range observed 25% of time. Mean temperature higher 37.5% of time, lower 37.5% of time.
Computed by U. S. Weather Bureau (based on historical records of actual temperature)

| City | October | Mid. Oct.-Mid. Nov. | Nov. | Mid. Nov.-Mid. Dec. | Dec. | Mid. Dec.-Mid. Jan. | Jan. | Mid. Jan.-Mid. Feb. | February | Mid. Feb.-Mid. Mar. | March | Mid. Mar.-Mid. Apr. | April | Mid. Apr.-Mid. May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | 62.3/63.8 | 56.6/58.2 | 76.9/78.5 | 46.6/48.4 | 44.0/46.0 | 43.3/45.3 | 43.5/45.5 | 44.0/46.4 | 45.1/47.9 | 47.5/50.1 | 51.2/53.6 | 55.9/58.0 | 60.9/62.6 | 64.9/66.5 |
| Baltimore | 56.4/58.3 | 50.9/52.6 | 45.6/47.0 | 40.2/42.0 | 35.8/37.8 | 32.2/36.1 | 33.9/35.7 | 33.4/36.0 | 34.6/38.0 | 38.1/41.7 | 42.0/45.7 | 46.6/49.4 | 51.9/53.6 | 57.5/59.0 |
| Birmingham | 62.2/64.2 | 56.2/58.5 | 50.7/53.2 | 46.5/48.9 | 44.3/46.5 | 43.4/46.1 | 43.5/46.5 | 44.4/47.6 | 46.0/49.4 | 48.8/5.17 | 52.4/54.7 | 56.6/58.5 | 61.1/62.6 | 64.6/66.3 |
| Boston | 54.2/56.2 | 49.3/51.3 | 43.6/45.6 | 36.8/39.2 | 31.2/34.0 | 28.9/31.9 | 27.9/31.2 | 26.4/29.6 | 27.8/30.0 | 31.4/34.0 | 35.6/38.6 | 41.1/43.3 | 46.7/48.3 | 51.5/53.1 |
| Chicago | 52.8/55.3 | 45.9/48.6 | 38.6/41.5 | 31.2/35.0 | 25.7/30.3 | 23.7/28.5 | 23.2/28.1 | 23.1/28.1 | 24.7/30.0 | 29.2/34.2 | 34.6/39.1 | 40.9/43.8 | 47.5/48.8 | 52.7/54.7 |
| Cincinnati | 54.9/57.1 | 38.6/50.9 | 42.0/44.5 | 35.9/39.1 | 31.4/35.2 | 30.1/34.4 | 29.8/34.6 | 29.9/34.4 | 31.6/36.0 | 35.2/39.2 | 39.6/43.1 | 45.4/48.1 | 51.4/53.3 | 56.4/58.6 |
| Cleveland | 53.5/55.6 | 47.1/49.3 | 40.5/42.7 | 34.3/37.2 | 29.3/32.9 | 27.3/30.9 | 26.9/30.5 | 26.0/29.6 | 26.2/29.7 | 29.8/33.7 | 34.7/38.8 | 40.3/43.2 | 46.2/47.8 | 51.8/53.9 |
| Dallas | 68.5/69.4 | 61.4/63.1 | 54.3/56.7 | 49.9/52.3 | 47.0/49.3 | 44.8/47.1 | 44.1/47.5 | 45.8/49.2 | 48.8/52.2 | 51.9/55.6 | 55.5/59.6 | 60.1/63.7 | 64.2/67.3 | 68.4/71.1 |
| Denver | 50.8/52.8 | 44.5/47.2 | 38.0/41.4 | 33.5/36.7 | 30.5/33.5 | 28.3/31.4 | 27.0/30.0 | 27.9/31.5 | 30.5/34.7 | 33.1/36.8 | 35.9/39.1 | 40.4/43.2 | 46.3/48.6 | 51.1/53.4 |
| Detroit | 51.9/54.1 | 45.8/47.9 | 39.2/42.1 | 32.9/35.3 | 27.9/30.9 | 25.6/28.5 | 24.8/27.7 | 24.2/27.8 | 24.6/28.9 | 27.9/32.1 | 33.1/37.2 | 39.3/42.1 | 45.6/47.1 | 51.0/52.8 |
| Kansas City | 58.1/61.2 | 50.7/53.9 | 42.6/45.9 | 36.7/40.1 | 32.4/35.9 | 30.4/33.0 | 30.0/31.9 | 30.2/33.6 | 32.2/37.1 | 37.3/41.2 | 42.9/45.9 | 48.6/51.3 | 54.9/56.7 | 59.9/61.7 |
| Los Angeles | 62.7/64.2 | 60.5/62.1 | 57.9/59.8 | 56.5/58.2 | 54.9/56.5 | 53.4/54.8 | 52.7/54.0 | 52.6/54.3 | 52.9/56.1 | 54.1/56.3 | 55.4/57.4 | 56.6/58.4 | 58.1/59.7 | 59.8/61.3 |
| Minneapolis | 48.8/51.7 | 40.6/44.5 | 30.9/36.0 | 22.5/28.1 | 16.2/22.3 | 13.8/18.4 | 13.4/16.5 | 13.3/17.7 | 15.0/20.8 | 21.7/25.9 | 29.9/32.5 | 37.3/40.3 | 44.7/47.9 | 51.3/54.4 |
| New Orleans | 70.5/71.9 | 64.6/66.8 | 59.0/61.9 | 56.0/58.5 | 54.6/56.8 | 53.2/56.0 | 52.6/56.0 | 54.0/54.4 | 55.9/59.3 | 57.6/60.8 | 60.6/63.0 | 63.4/65.7 | 67.4/69.1 | 70.7/72.1 |
| New York | 57.0/58.6 | 51.8/53.2 | 46.5/47.9 | 40.2/42.3 | 34.6/37.5 | 32.5/35.2 | 32.0/34.6 | 30.9/33.6 | 30.9/33.6 | 34.1/36.8 | 38.7/41.3 | 43.6/46.0 | 49.0/51.0 | 54.6/56.3 |
| Philadelphia | 55.6/57.6 | 50.3/52.3 | 45.3/47.2 | 39.5/42.0 | 35.1/37.3 | 32.7/35.4 | 31.8/35.0 | 31.1/34.3 | 32.3/35.3 | 36.4/39.2 | 40.8/43.5 | 45.6/47.9 | 50.8/52.6 | 56.2/58.0 |
| Pittsburgh | 52.0/54.4 | 46.2/48.2 | 40.3/42.0 | 34.0/36.4 | 29.5/32.6 | 27.8/31.0 | 26.9/30.1 | 26.4/30.5 | 26.9/32.0 | 30.5/35.4 | 36.0/40.6 | 42.3/46.5 | 48.0/49.8 | 53.1/55.1 |
| St. Louis | 58.1/60.5 | 51.0/53.9 | 43.6/46.9 | 37.6/41.2 | 33.3/37.1 | 30.9/35.1 | 30.1/34.7 | 31.3/35.7 | 33.7/38.1 | 37.8/41.8 | 42.9/46.3 | 48.6/51.5 | 54.5/57.0 | 58.4/61.9 |
| San Francisco | 58.5/60.2 | 56.4/57.9 | 53.8/55.0 | 50.9/52.3 | 48.7/50.2 | 47.1/48.9 | 46.9/49.1 | 48.3/50.8 | 50.0/51.7 | 51.0/52.8 | 51.7/53.5 | 52.4/54.2 | 53.2/55.0 | 54.3/55.9 |
| Seattle | 51.0/52.5 | 46.8/48.3 | 43.1/44.5 | 41.0/42.4 | 39.4/40.7 | 37.7/39.0 | 37.2/38.5 | 38.2/40.0 | 39.7/42.0 | 41.7/43.3 | 43.6/44.7 | 45.8/47.2 | 48.2/49.9 | 51.0/52.9 |



In Ladue, St. Louis County, Missouri, this new million-dollar school was built by Robert Paulus Construction Company.

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**Lumber treated with penta** will resist rot and insect attack far beyond the normal life span of untreated timber. Forced deep into the cells of the wood by pressure, penta makes the wood virtually time-proof. Rain and ground water can't wash it out. Properly formulated and applied, penta will leave your wood clean, paintable and dimensionally stable, if specified.

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***Information for contractors.*** This brochure, titled "Specify Penta," gives facts and figures on penta applications. For your copy, write: Monsanto Chemical Company, Organic Chemicals Division, 800 North Twelfth Blvd., St. Louis 1, Missouri.

Understripping of gym floor, as well as white-pine door frames, was pressure-treated to a 6# retention of penta solution.

Penta has wide usage possibilities. It is specified regularly by utilities, railroads, in heavy construction and in farm and home building.

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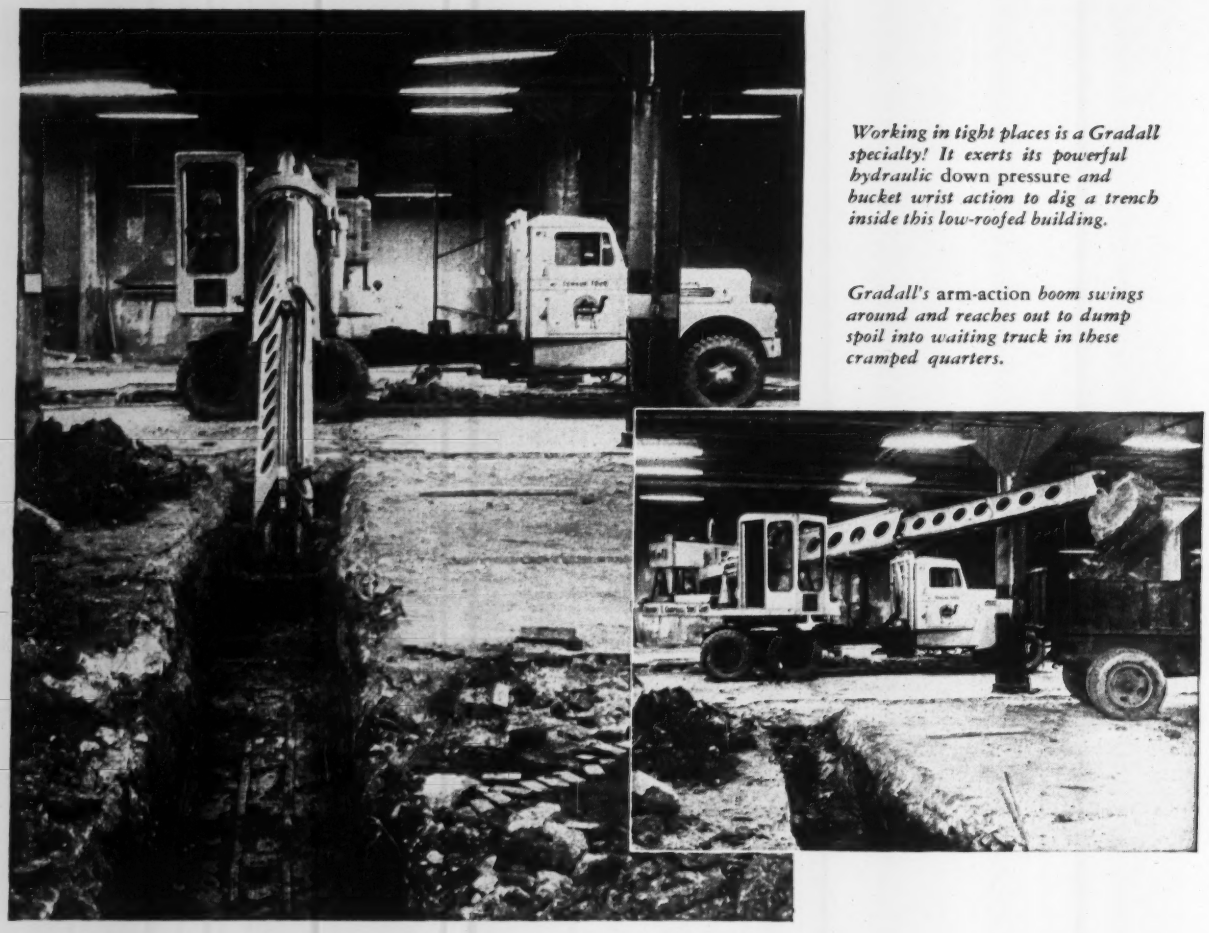

*Working in tight places is a Gradall specialty! It exerts its powerful hydraulic* down pressure *and bucket wrist action to dig a trench inside this low-roofed building.*

*Gradall's* arm-action *boom swings around and reaches out to dump spoil into waiting truck in these cramped quarters.*

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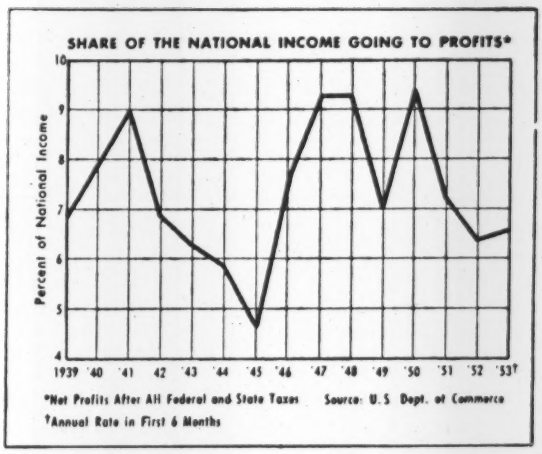
*The first of two articles on profits*

# PROFITS... How High Are They?


SHARE OF THE NATIONAL INCOME GOING TO PROFITS*
Percent of National Income
10
9
8
7
6
5
4
1939 '40 '41 '42 '43 '44 '45 '46 '47 '48 '49 '50 '51 '52 '53†
*Net Profits After All Federal and State Taxes
†Annual Rate in First 6 Months
Source: U. S. Dept. of Commerce

How high are profits? What is being done with them? This is the first of two articles designed solely to throw some factual light on these key economic questions.

One of the important economic developments of 1953 has been a substantial increase in the dollar volume of corporation profits from the level of 1952. But to answer the question "How high are profits?" we must also measure them: 1) by comparison with the record of previous years, and 2) as a share of the total national income. The term "profits," as used here, refers to profits *after taxes*. These are the only profits that can be paid to stockholders or retained for use in the business.

In the first six months of 1953, corporate profits *after taxes* were at an annual rate of $20.4 billion. This was higher than in the first half of 1952, but lower than in the full years 1948 or 1950, or in the first half of 1951. If allowance is made for the declining value of the dollar, this year's net profits for all corporations represent less purchasing power than those made five or six years ago.

Here is the record of profits over the years:

| | Net Profits After Taxes of All U. S. Corporations | |
|---|---|---|
| | Billions of Dollars | |
| | Actual | In 1953 Prices |
| 1929 | 8.4 | 14.6 |
| 1939 | 5.0 | 9.8 |
| 1947 | 18.5 | 22.1 |
| 1948 | 20.7 | 22.7 |
| 1949 | 16.3 | 18.3 |
| 1950 | 22.7 | 24.6 |
| 1951 | 20.1 | 19.7 |
| 1952 | 18.6 | 18.7 |
| 1953* | 20.4 | 20.4 |

*Annual rate, first six months

The record shows that real profits have a little more than doubled since 1939. This increase, however, does not mean that corporations are doing exceptionally well. The entire national income has doubled since 1939. And our industrial plant is more than twice as large as it was in 1939. Therefore, profits have just about kept pace with industrial growth.

### Return on Investment

How high are profits compared with sales, or compared with the stockholders' investment?

What is the rate of return to the people who have invested their savings in corporate business?

The table below shows that for the past three years the rate of return on both sales and investment has been substantially below the return achieved in earlier postwar years. The rate of return on stockholders' investment is higher now than it was in 1939. But this is primarily because today's profits are reported in terms of today's prices, whereas much of the investment in plant facilities is still carried on the books at prewar prices, which are substantially below the cost of replacement. The current rate of return, measured as a percentage of total corporate sales, is below prewar levels.

| | Corporate Profits After Taxes | |
|---|---|---|
| | Per Cent of Total Sales | Per Cent of Stockholders' Equity * |
| 1929 | 6.1 | NA |
| 1939 | 4.1 | 4.0 |
| 1947 | 5.3 | |
| 1948 | 5.3 | 14.8 average |
| 1949 | 4.4 | |
| 1950 | 5.3 | |
| 1951 | 4.1 | 11.8 |
| 1952 | 3.6 | 10.3 |
| 1953# | 3.7 | 10.8 |

* Manufacturing corporations only
NA Not available
# Annual rate, first six months

In considering these figures, it should be remembered that they are averages for all corporations. Some companies make more than the average, and many make no profit at all. In every year since 1915 at least 25% of all corporations have operated at a loss. In 1939, 58% of all corporations were losing money. This year the figure will probably be at least 30%. The improvement since 1939 shows a much healthier economy. But it does not indicate that profits are easy to make.

### How Big a Share of the Pie?

The most important single fact about profits is that they now represent a *smaller* share of national income than they have in past years of normal prosperity. For the past three years, profits have taken a smaller share of the pie than in 1939, and considerably smaller than in the early postwar years. Here, as the chart at the beginning shows, is the record:

| | Corporate Profits After Taxes as a Percentage of National Income |
|---|---|
| 1929 | 9.6 |
| 1939 | 6.9 |
| 1947 | 9.3 |
| 1948 | 9.3 |
| 1949 | 7.5 |
| 1950 | 9.4 |
| 1951 | 7.2 |
| 1952 | 6.4 |
| 1953* | 6.6 |

*Annual rate, first six months

The main reason for the declining corporate share of national income is, of course, the increasing share taken by the federal government in the form of taxes. The wage earners' share is also higher than in 1939. But the really startling increase is in federal taxes. Taxes on profits now equal almost 8% of the national income, compared to only 2% in 1939.

### Why This Is Important

It is important that these facts about profits and taxes be widely understood. At its next session, Congress must consider what to do about the emergency taxes on profits enacted after the outbreak of the Korean War. The so-called excess profits tax is scheduled to die on January 1, 1954. In the absence of new legislation, the rate of the corporate income tax will drop from 52% to 47% on April 1. Many factors, including the revenue needs of the government, must enter into the decision whether or not to reduce taxes. But one fact stands out clearly: By comparison either with past years or with the total national income, corporate profits today are relatively low.

* * *

*The second article in this series will discuss what corporations do with their profits.*

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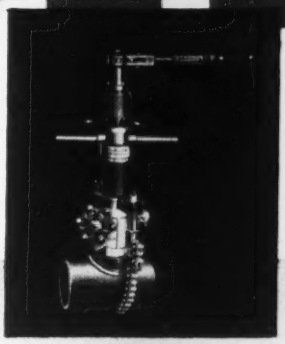
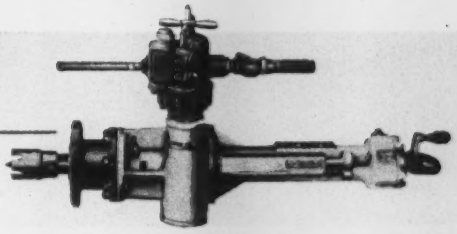


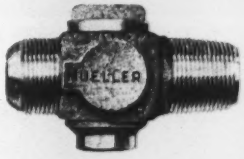
### "B" Tapping and Inserting Machine

Drills and taps mains and inserts corporation stops, ½" to 1", under pressure... may be used on dry taps, ¾" to 2½"... similar machines available in larger sizes.



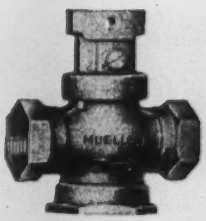
### "C-1" Drilling Machine

Makes cuts 2" to 12" in any size main... dry or under pressure... power-operated with H-600 Air Motor or H-602 Gasoline Engine Drive Unit... hand-operated model also available.



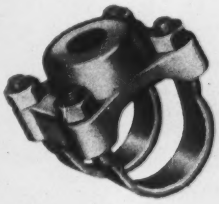

### Corporation Stops

Designed for insertion in mains under pressure with Mueller Tapping and Inserting Machines... wide range of sizes and types... variety of inlet threads ...fully tested.



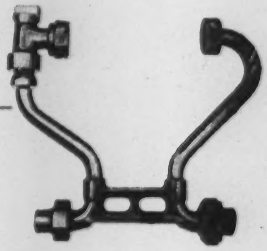
### Curb Stops

Ground key stops... steeper taper on key prevents sticking and allows easy operation... inverted key or solid tee head type available... wide range of sizes ...fully tested.



### Service Clamps

Designed for cast iron, steel, asbestos cement, or wrought iron pipe... double or single strap... full length threads ...neoprene or lead ring gaskets ...wide range of sizes and tappings.



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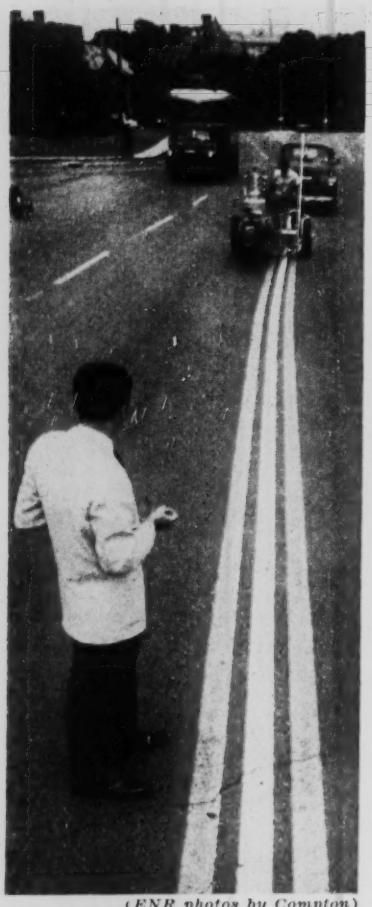
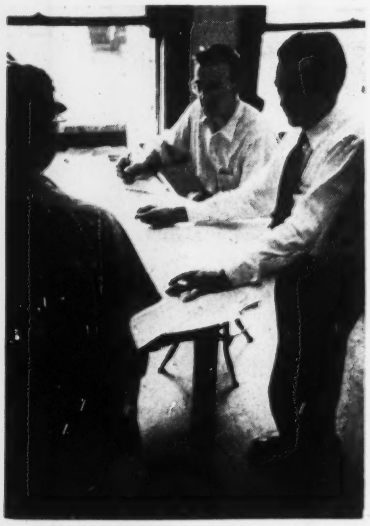
SIGNS IN STORAGE cover almost any traffic situation. J. A. Carrothers, traffic engineer, looks at new-type no-parking marker.



*(ENR photos by Compton)*

ROAD WORK—Dayton's new 5-ft-wide pavement striper, designed by traffic engineering division, cuts traffic interruptions.

ROTARY ACCIDENT file updates coded case histories of 5,000 Dayton intersections.



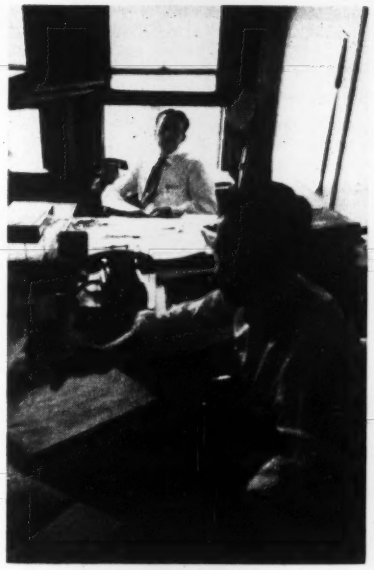
DRAWING TABLE TEAMWORK sets up new traffic pattern.

# Engineering means swifter, safer traffic for Dayton

You don't need magic formulas and bizarre innovations to make a city safer—traffic wise—for all of its citizens, afoot and awheel. You may not get the complete answer—but you can certainly ease the constrictions on your business district, and let it breathe a little easier.

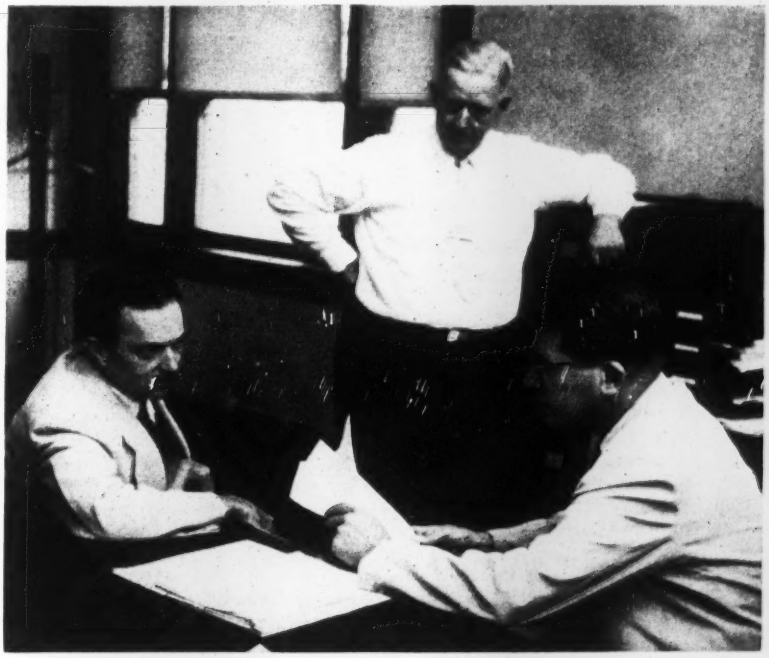
What you need is a common-sense look at what's wrong, a workable and reasonable plan to remedy those wrongs, enough manpower to make the necessary studies and give the necessary thought, a cooperative spirit—and proper backing from city authorities.

The result won't be immediately spectacular—the cars won't immediately glide smoothly through quiet streets with no jams. But your fatality rate will come down, slowly, there will be fewer dented fenders and tempers,



**CARROTHERS HASHES** over facts and figures of staff reports in City Hall office with an aide, Robert Carroll.

**BEST FRIEND, WORST ENEMY** of traffic engineer is telephone. Carrothers handles favor-seekers firmly but diplomatically. He is always searching for a good, logical idea in calls that come from the public.



**SIDE-OF-DESK STATUS** in sessions with city manager, with city engineer standing by, resulted from weakly defined recognition of Carrothers' place in Dayton government. At first he had no more power than average citizen.

**METHODS NOT MAGIC** is the formula used in Dayton as Carrothers seeks future traffic improvements.

some of the squeeze on the business districts will begin to ease.

Dayton, Ohio is in the process of proving the worth of this fairly simple formula.

The whole thing really started in 1926, when city commissioners decreed a Comprehensive Plan for their town. At that time, they thought traffic engineering a good idea—but didn't OK funds for it until a referendum in 1949 approved a city income tax—part of the revenue from which was to go to support a traffic department. Court action blocked application of the tax in 1950, so nothing happened until a new vote a year later re-approved the tax and paved the way for the traffic engineering division.

Dayton officials reached out to Sche-

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nectady, N. Y., for young (38-year-old) J. Anthony Carrothers, hired him as traffic engineer in January 1952.

• **First, cut tape**—Carrothers found himself the boss of a 15-man department, comprising mostly men working in a sign-painting-and-street-striping section; and also the inheritor of a red-tape procedure that imposed endless restrictions on him. And he had little authority—nothing could be done on his say-so; he could only recommend.

Before tackling the traffic, he first had to tackle the law. His attempts to clarify the status of his department are paying off. Last month the city attorney—at the request of City Manager Herbert Starick—began work on a new ordinance. Under the new set-up, the traffic engineer (with approval of the city manager) will be able to make the necessary regulations to enforce city traffic ordinances—and also to make and enforce temporary (90-day) regulations to cover special conditions.

• **Modern methods**—Both the traffic engineering division and Carrothers started from scratch. But 21 months on the job has brought changes. The sign shop has been completely modernized for making traffic control signs using reflectorized sheeting bonded to metal blanks. Sensitized silk screens for painting stencils are made by a photographic process instead of by the conventional hand-drafting method.

Another investment that's paying dividends is a new pavement striping machine—called the "Dayton Machine"—built to specifications prepared by the traffic engineering division. In contrast to older models which are so wide that they block at least one traffic lane, this self-propelled machine is only 5-ft wide, permitting it to operate with a minimum of interruption to traffic. Its air-operated spray guns can lay down a two-color, triple-line, marking in one continuous operation.

Traffic improvements in Dayton are made on a priority system of greatest need—not on individual or collective requests by the citizens. To expedite this phase of his division's work, Carrothers has set up a motorized and coded accident file covering 5,000 "intersection areas" of the city, of which 3,000 segments have had one or more traffic accidents during the past year.

• **Improvements**—Traffic control signals, installed 20 years ago, need to be relocated for better visibility. During the next three years old and outmoded stop signs will be replaced at a total cost of only $18,000 for materials, plus the cost of making and installing them. A proposed two-year program recommends spending $565,000 for signal modernization and $508,000 for intersection redesign.

Dayton is one of the few cities that controls all of its signal systems within a 3-mile radius of the downtown area from one central location. And Carrothers' timing schedule is based on the length of time it takes "an old lady to walk across Main Street." Future plans contemplate separating the downtown signal system from those in outlying areas so that each radial or crosstown street can be timed individually. The cost of these improvements is expected to be well over $100,000. Where needed at major intersections, electronic controllers with vehicle detectors will be substituted for fixed-time controllers.

Pavement marking projects currently under way include: Marking all signalized intersections with individually designed crosswalks, stop lines and approach lanes (35% finished); complete laning of all major streets over 50 ft wide (25% finished); and center-lining all major streets over 30 ft wide where parking regulations permit.

• **A planner, too**—In addition to Carrothers' direct duties to improve traffic conditions, there is an indirect responsibility to recommend measures to other agencies.

At present, Carrothers is working with the city plan board and Bartholomew and Associates, consulting firm, on the master plan of streets and highways. The survey report on all phases of planning will cost $140,000. He is also cooperating with the highway design section, the bridge design section and the city engineer in the development of (1) $1.3 million worth of street improvement projects, (2) traffic design of two new bridges, (3) traffic design of a new boulevard.

Carrothers' early training left little chance of his escaping traffic engineering as a lifetime occupation. He got his civil engineering degree from the University of Detroit in 1937. Then came two years of part-time postgraduate study at Wayne University (Detroit) in city planning, zoning and legal aspects of engineering.

From 1938 to 1945 he was senior assistant traffic engineer for Detroit. After nearly a year as civilian traffic engineer for the U. S. Army Transportation Corps in France and two years conducting traffic surveys in this country he became traffic engineer for Schenectady, N. Y., early in 1949. Just last month he took on a new duty—president of traffic engineering section of Ohio State Safety Conference.

# If you believe

# ALL COMPRESSORS ARE ALIKE...

| | | | | |
|---|---|---|---|---|
| 600 | 134 | 202 | 68 | 33.7 |
| 315 | 75 | 117 | 42 | 35.6 |
| 210 | 51 | 78.5 | 27.5 | 35 |
| 160 | 37 | 57 | 20 | 35 |
| 105 | 25 | 42.5 | 17.5 | 41.6 |

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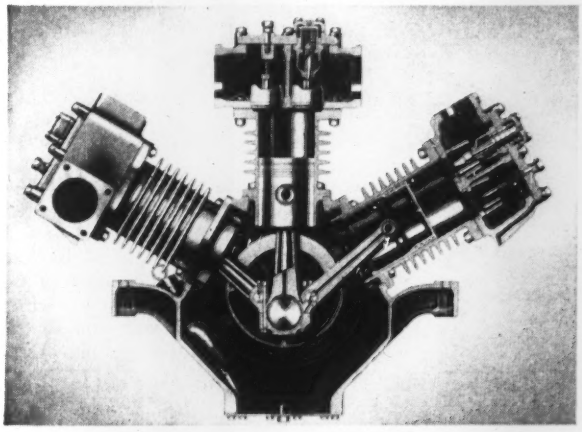


**2 . EASY MAINTENANCE.** All parts of the Blue Brutes are readily accessible. No special tools or complicated disassembly procedures are needed. And the compressor uses the same oil as the engine.

| | | | |
|---|---|---|---|
| 60' | GASOLINE | 1.31 | 1.42 |
| 105' | GASOLINE<br>DIESEL | 2.16<br>1.66 | 2.35<br>1.73 |
| 160' | GASOLINE<br>DIESEL | 3.18<br>2.45 | 3.44<br>2.60 |
| 210' | GASOLINE<br>DIESEL | 4.32<br>2.89 | 4.70<br>3.06 |
| 315' | GASOLINE<br>DIESEL | 6.25<br>4.38 | 6.75<br>4.64 |
| 600' | DIESEL | 6.30 | 9.20 |

**3 . FUEL ECONOMY.** How does your compressor stack up in comparison with the Blue Brute for economical fuel consumption? The figures shown have been determined under normal field operating conditions.

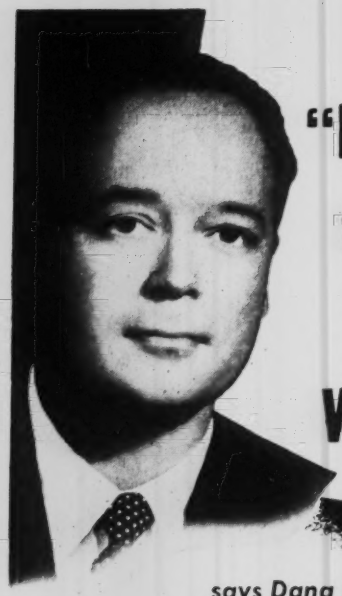
Get all the facts about the Blue Brute from your nearest Worthington distributor. Or write to Worthington Corporation, Construction Equipment Division, Section H.3.6, Plainfield, New Jersey.

**WORTHINGTON**

H.3.6

*IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB*

ROCK DRILLS • WAGON DRILLS • PAVERS • CONCRETE MIXERS • PORTABLE PUMPS



# "Engineers Rate the COPYFLEX 93 as the Top Whiteprinter..."

*says Dana H. Bennett*
*Bruning Drafting Room Specialist*

"Yes, wherever I've sold a COPYFLEX 93 – and I've sold plenty of them–engineers and draftsmen tell me there's nothing like it for speeding prints.

"They find it the finest heavy-volume whiteprinter available. And they like its continuous high-speed production of top quality, dry, ready-to-use prints from either sheets or roll stock. Its vacuum feed permits easy insertion of curled originals.

*"On top of this, the '93' needs no expensive ventilation or plumbing."*

From prints to pencils, Bruning-trained men like Mr. Bennett can fill every drafting requirement.

You receive "in-person" attention to your needs and fast service on all kinds of drafting room equipment to help you turn out better work in less time at lower cost. Send coupon today for more facts and figures on Copyflex.

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**MODEL 93 COPYFLEX**

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4700 Montrose Ave., Chicago 41, Ill.
☐ Please have a Drafting Room Specialist call.
☐ Send me free booklets on COPYFLEX.
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Company.....
Street.....
City.....Zone....State.....

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**BRUNING**
*Everything for the Engineer and Draftsman*


## MUNICIPAL

### Municipal briefs . . .

• **Trans-Toronto Expressway**–A ten-mile, $35-million lakeshore expressway across the city is planned to carry an estimated 150,000 Toronto, Ont., cars daily, according to Fred Gardiner, metropolitan council chairman.

• **New signs**–The New York Department of Traffic announces the debut of "Yield right of way" signs which will replace "Stop" signs at those intersections where full stops are not warranted. In Wichita, Kan., yellow stop signs will give way to red ones in accordance with the new national standard established recently at Buffalo, N. Y., by the Institute of Traffic Engineers.

• **A recent Utah Supreme Court** decision declares that a four-mill tax levy designed for financing water purification and sewerage needs is illegal. Terming the projects "vital to city health," Mayor Earl J. Glade pledged cutting municipal spending to meet sewerage and water commitments.

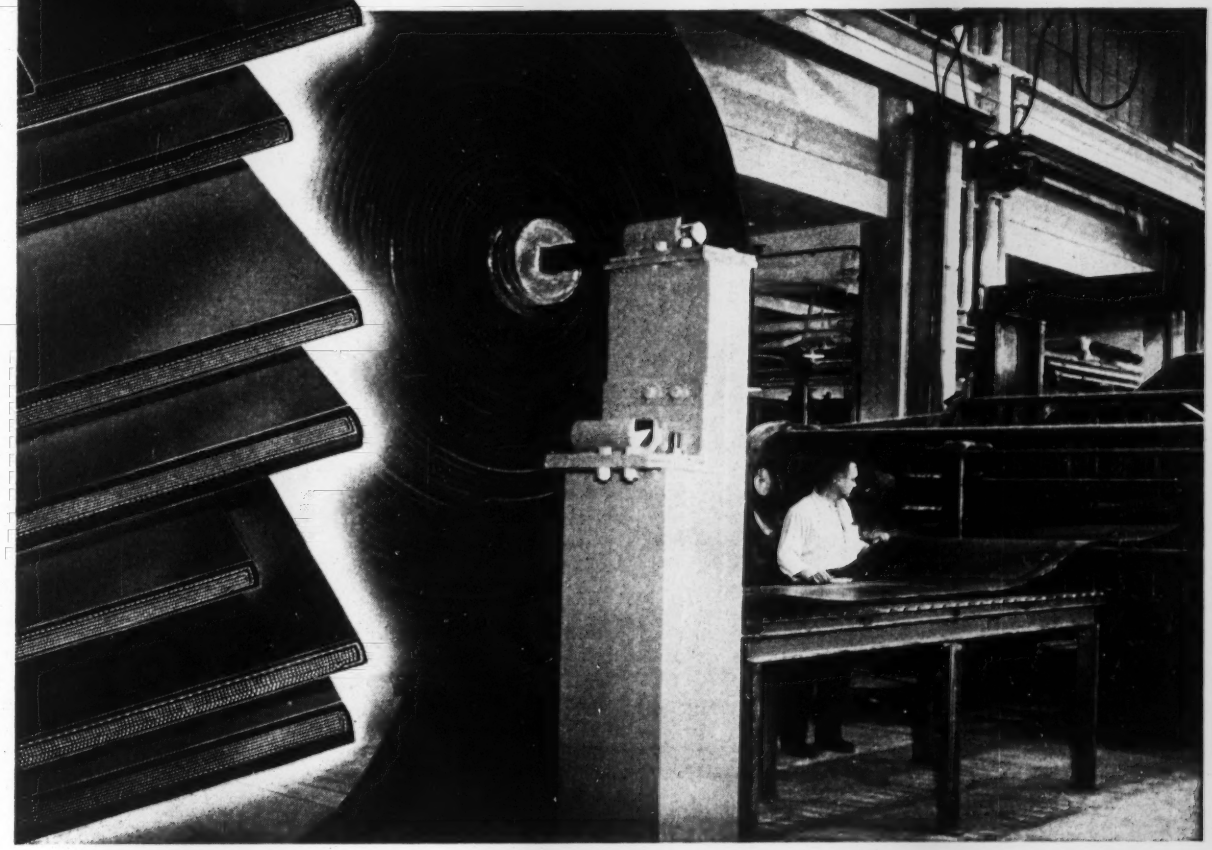
• **Legislative action** authorizing fluoridation of the St. Louis water supply will be supported by the Democratic city administration, announces Mayor R. R. Tucker. Capital outlay to fluoridize the 857,000 population city is estimated at $35,000, and the annual cost of the chemicals is placed at about $100,000.

• **Another city scramble**–San Francisco will test the "scramble system" (ENR June 11, p. 45) at four of its downtown intersections. Expenditure of $15,000 has been approved for new traffic signals equipped with a special phase which will stop all traffic while pedestrians cross in any direction.

• **Bargain sewage plant**–The City of Richfield, Utah, has purchased military sewage plant surplus equipment valued at $30,000 for just $260. When the plant has been moved to the city and has been completed, city engineer Richard C. Hansen estimated that the total saving to the taxpayers will be in the order of $40,000.

• **Gift streets**–The gift of free street paving has been made two years in a row by Harvey J. McFarland, mayor, and local construction man of Picton, Ont. This year the paving cost was $22,000 and last year $21,000. McFarland also has donated three caution lights and one stop light for the town's main intersections.

# Designed to Deliver Value



Whenever your job requires belting . . . conveyor, elevator or transmission . . . always specify Hewitt-Robins. Hewitt-Robins belting has proved its value through performance on the job. Each Hewitt-Robins belt, available in a complete range of types and sizes, is designed to deliver greater economy and durability for a particular application.

**HEWITT-ROBINS CONVEYOR BELTING** is job-engineered to handle bulk materials under any conditions.

**HEWITT-ROBINS ELEVATOR BELTING** carries extra tonnages with trouble-free service.

**HEWITT-ROBINS TRANSMISSION BELTING** gives more power, maximum flexibility with minimum stretch.

*For the best answer to your particular belting needs always see your local Hewitt Rubber Distributor. (See "Rubber Products" in your classified phone book.)*

**HEWITT HR ROBINS**

**Executive Offices, Stamford, Connecticut**

**DOMESTIC DIVISIONS:** Hewitt Rubber • Robins Conveyors • Robins Engineers • Restfoam
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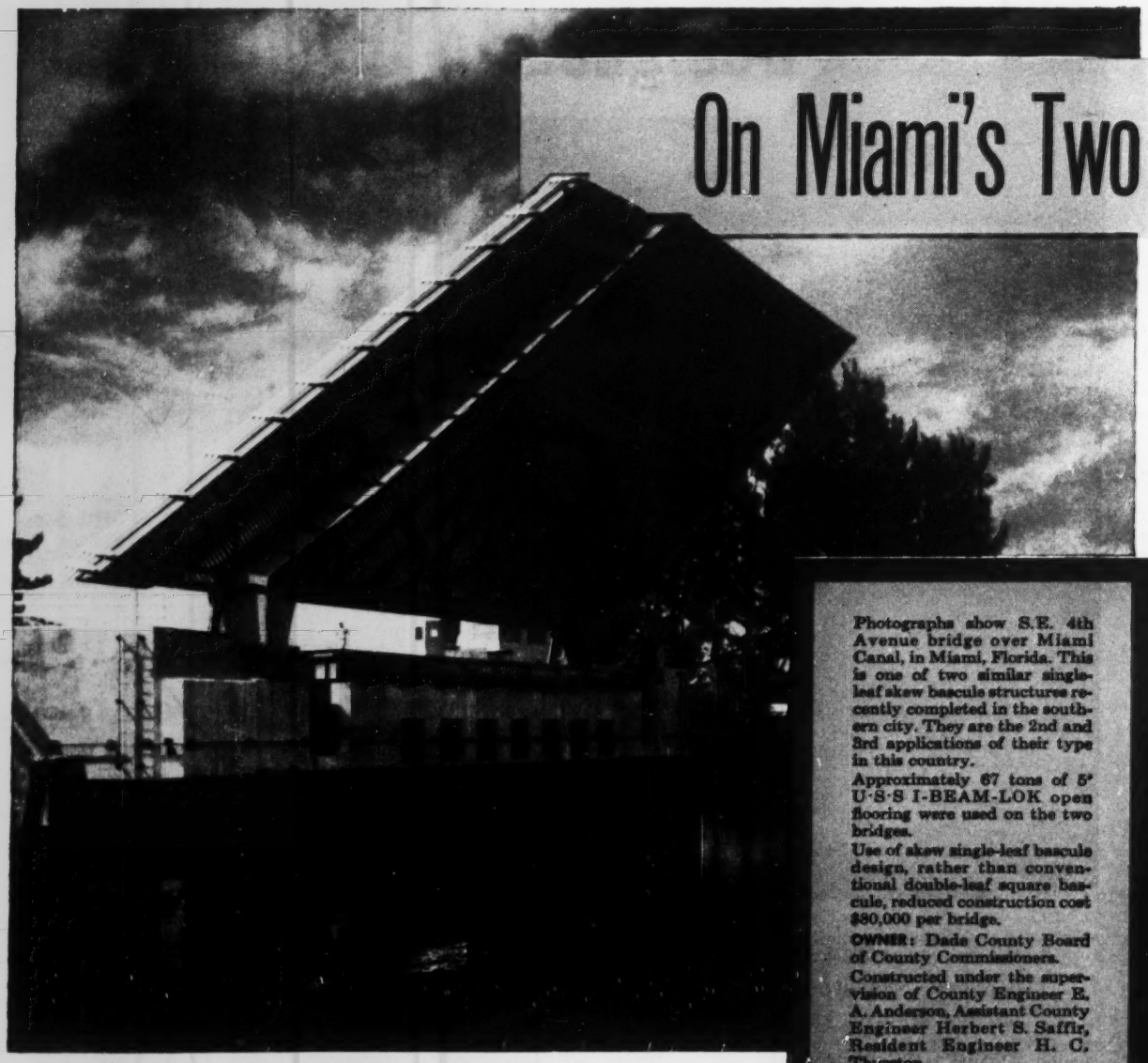
# On Miami's Two



Photographs show S.E. 4th Avenue bridge over Miami Canal, in Miami, Florida. This is one of two similar single-leaf skew bascule structures recently completed in the southern city. They are the 2nd and 3rd applications of their type in this country.

Approximately 67 tons of 5" U·S·S I-BEAM-LOK open flooring were used on the two bridges.

Use of skew single-leaf bascule design, rather than conventional double-leaf square bascule, reduced construction cost $80,000 per bridge.

**OWNER:** Dade County Board of County Commissioners.

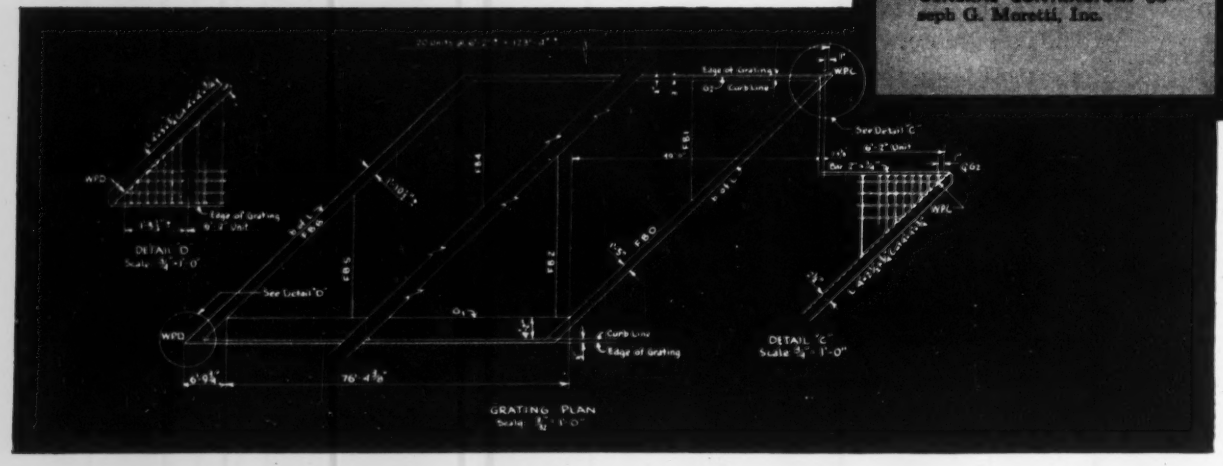
Constructed under the supervision of County Engineer E. A. Anderson, Assistant County Engineer Herbert S. Saffir, Resident Engineer H. C. Thurston.

**CONSULTING ENGINEERS:** Rader Engineering Company, and Hardesty & Hanover.

**GENERAL CONTRACTOR:** Joseph G. Moretti, Inc.

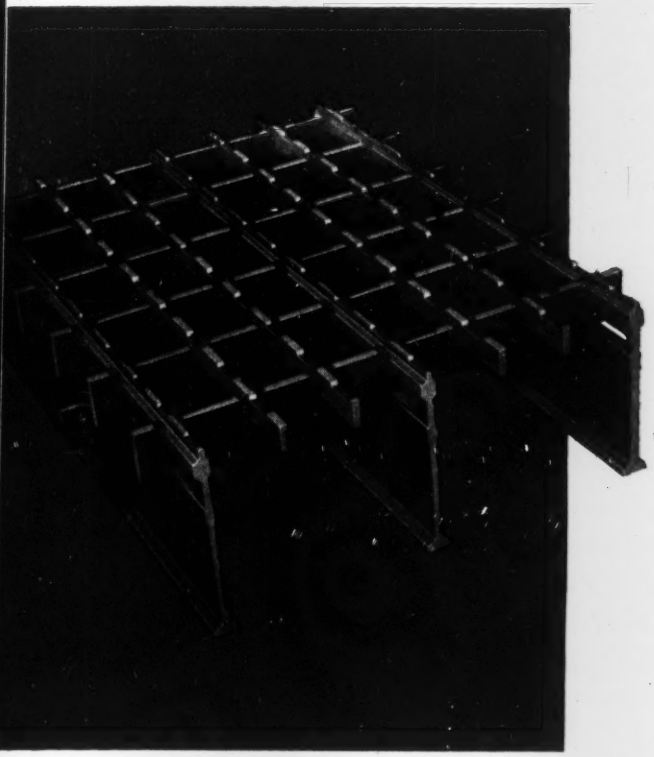
## *SELECTED AS THE MOST BEAUTIFUL BRIDGE OF ITS TYPE*

Winner in the movable bridge class of the 25th Annual Aesthetic Bridge Competition, sponsored by the American Institute of Steel Construction.



# Skew Bascule Bridges...

# U·S·S I-BEAM-LOK saves 272 tons of flooring deadweight



THE two movable bridges recently completed over the Miami Canal at S.E. 4th Avenue and N.W. 36th Street, in Miami, Florida, are the second and third structures of this type in the country.

Both bridges are similar single-leaf bascule structures with 44-ft. roadways. Each crosses the canal at an angle of 45 degrees to maintain a straight alignment for both roads across the water.

The Hanover skew bascule design which exactly fits the channel, eliminated waste span length and offered the least obstruction to navigation. And by avoiding the usual double-leaf type of structure, resulted in substantial savings.

Contributing to this economy was the use of 7,056 sq. ft. of U·S·S I-Beam-Lok open steel flooring.

On the basis that 5″ I-Beam-Lok weighs 18.8 lbs. psf., compared with 96 lbs. psf. for a conventional 8″ slab of concrete, the weight savings on the flooring alone for these two bridges amounted to approximately 272 tons!

Available in units measuring 6′-2″ in width and up to 49′ in length, this lightweight all-steel open flooring with its strong, full 5″ depth can be applied directly to stringer on spans up to 4′ centers to permit H-20 loadings. It does not require secondary supports.

To find out more about U·S·S I-Beam-Lok Open Flooring, contact the sales office nearest you. Our engineers are ready now to discuss its many advantages with you.

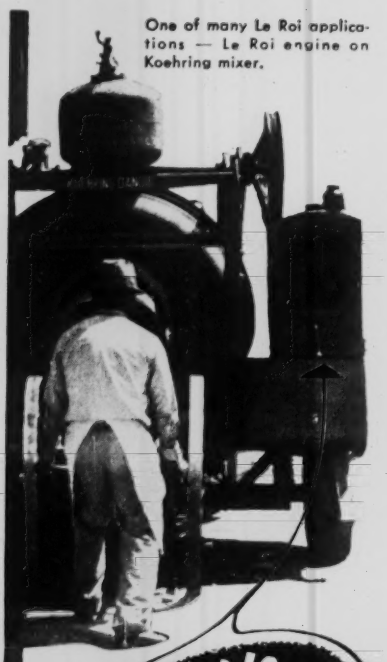
***U·S·S SHEET PILING ALSO USED ON THESE PROJECTS***—Approximately 125 tons of sheet piling were used in the cofferdam construction for the bascule pier and the rest pier on both bridges. 6,340 sq. ft. of sheet piling remained in place on the S.E. 4th Avenue bridge after the piers were completed; and 6,050 sq. ft. remained in place on the N.W. 36th Street bridge.

UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO · TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

**U·S·S I-BEAM-LOK**

3-818

**UNITED STATES STEEL**



One of many Le Roi applications — Le Roi engine on Koehring mixer.

Profitable performance starts here!

...with LE ROI power

Why do you find Le Roi engines on so many leading makes of construction equipment?

There are three main reasons: (1) Dependable service! (2) Operating economy! (3) Easy maintenance! And these add up to *profitable* performance!

Le Roi engines are designed from scratch for heavy-duty service—and have many "extra" features that pay off in all-around satisfaction. You get advanced design, precision machining, quick-maintenance features.

Let Le Roi's performance record guide your judgment, when you select equipment. Look for the Le Roi trademark, before you buy. And insist on it on your replacement engines.

Write for latest bulletins.

LE ROI

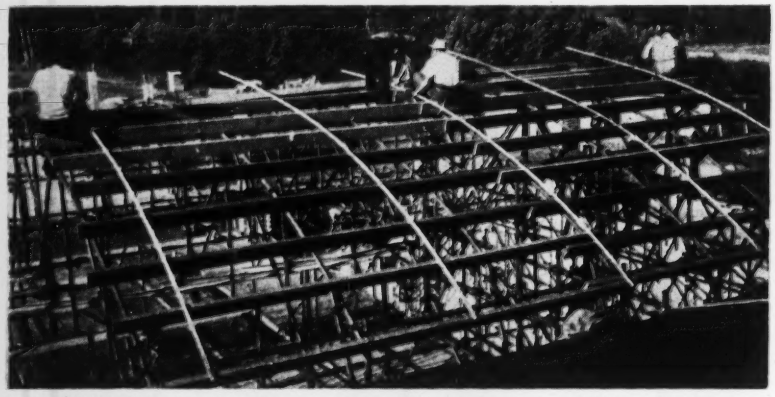
LE ROI COMPANY

MILWAUKEE 14, WISCONSIN

*Plants:*

Milwaukee • Cleveland • Greenwich, O.

BARREL VAULT ROOF for textile mill in Newcastle, New South Wales, has rib stiffeners placed at third points in the 140-ft length of each barrel.



FORMWORK for barrel vaults was supported by tubular steel scaffolding placed to span mill machinery that was installed before roof was concreted.

## Machinery is moved into mill— then thin-shell barrel roof completed

Concrete for the roof of a brick-walled textile mill in Newcastle, Australia, was placed after mill machinery had arrived on the site and been placed inside on the floor slab. The scarcity of steel in Australia predicated the use of lightly reinforced, thin-shell concrete barrel vaults as roofing for the mill.

Consisting of eleven 140-ft long by 47-ft wide arched vaults, the roof covers an area of 519x140 ft. The vault slab is 3 in. thick and widens to a 4-in. thickness at the edges of each barrel where columns at third points in the 140-ft width of the building support the thin-shell roof. Arched rib stiffeners at third points on the exterior surface of the barrel vaults help transfer the load of the thin-shell roof to the supporting columns.

• **Canvas ceiling**—Since machinery was placed inside the mill while formwork was still going on, a 14-oz duck canvas was laid down on the finished form to protect the equipment from dampness. Reinforcing steel for the roof barrels was put on the duck and then vault concrete was placed. When forms were stripped, the duck was left adhering to the underside of the concrete ceiling. The duck was painted to give a smooth ceiling texture.

• **Expansion joint** — Temperature, creep, and shrinkage movements of the thin-shell roof barrels are absorbed by expansion joints between the 2nd and 3rd, 5th and 6th, and 8th and 9th barrels. The joint runs the full length of the barrel and runs down through the supporting columns and up through

THE installation of Permutit automatically controlled zeolite water softeners economically solved the problem of hard water for this Florida city. The Automatic Regeneration feature saves valuable man hours, eliminates the possibility of costly human errors, and assures a constant supply of clear, soft water.

Well water of 20 grains hardness is softened by Permutit Q, the high capacity sodium cation exchanger, which in this installation is regenerated with brine from a nearby salt well.

Consulting Engineers, Russell & Axon of Daytona Beach, Florida, planned the layout and recommended Permutit Automatic Equipment and high capacity Permutit Q. For information concerning your city's water problems write to: THE PERMUTIT COMPANY, Dept. ENR-10A, 330 West 42nd St., New York 36, N. Y.

WATER CONDITIONING HEADQUARTERS
FOR OVER 40 YEARS

PERMUTIT®

• **SMOOTHER**—no hard spots.

• **GRAPHITE-SATURATED**—better adhesion.

• **MORE OPAQUE** — better blue and white prints.

• **STRONGER**— less point breaking.

• **NON-BLEEDING** — gives more prints — cleaner and sharper prints—even after hundreds of trips through the reproducing machine.

• **ECONOMICAL**—25% to 33⅓% more wear.

A.W.FABER CASTELL LOCKTITE U.S.A. 2H
A.W.FABER CASTELL 9000 HB
CASTELL
the drawing pencil with the Master Degrees
Your choice of CASTELL 9000 wood-encased pencil or balanced Push Button LOCKTITE Holder. Black or colored.
Imported CASTELL 9000 and CASTELL 9030 Imported Leads —18 degrees —full range, 7B to 9H.
A.W. FABER-CASTELL
PENCIL COMPANY INC
*Imported from West Germany

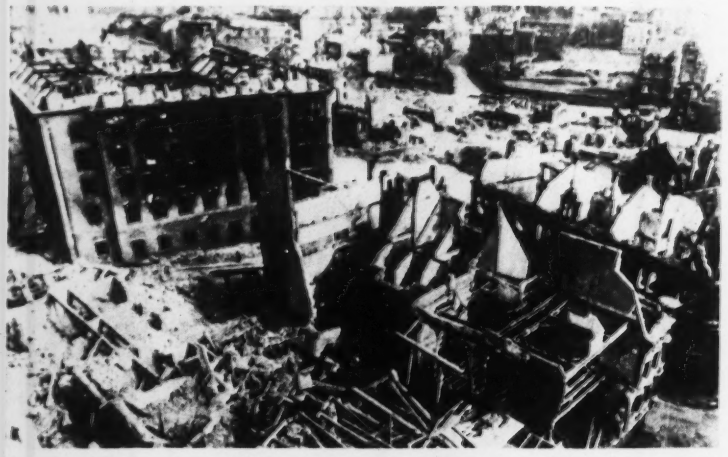



the stiffening rib at the column. For the column and rib expansion joint, a fabric was formed at the joint line inside these structural members and cut out after the concrete had set. This method simply left an opening through the column and stiffening rib to allow for expansion and contraction of the roof.

Tubular steel scaffolding supported the formwork. Originally it had been intended to use wood centering and traveling formwork to carry out the barrel vault roof, but the early arrival of the mill equipment made necessary the use of steel scaffolding that could span the machinery being installed at ground floor level.

A carefully graded slag aggregate and a plasticizing agent were used in the low slump concrete mix—placed with-

(Continued on page 68)



Essen, Germany, 1945, as seen from city hall

## West German construction changes view, 1953

Since the end of the war, the West German construction industry has been a major factor in that country's economic recovery. Because of wartime destruction, large scale residential housing was imperative for Germany, and the Germans have produced more dwelling units since 1950 than any other country in the world with the exception of the United States. In 1952 Germany averaged 36,500 dwelling units completed per month. Mortgage commitments for construction totaled $357-million for the first six months of this year, and this represents a 71% increase over the comparable period last year. With a volume of export-import trade a little over a third that of the United States, in 1952, Germany had a $200-million surplus in her balance of foreign trade.

CATERPILLAR

# REPORTS FROM CONSTRUCTION MEN ON THE KANSAS CITYS FLOOD CONTROL PROJECT

Well on its way to completion is the Kansas Citys Flood Control Project on the rebellious Kaw (Kansas) River.

People of the two Kansas Citys know that the Kaw doesn't tame easily. They remember vividly the mud-and-flood desolation and destruction of 1951. They intend to see that it does not recur.

As usual on a project of this importance, the predominant color of equipment is Caterpillar* yellow. Not only are the project contractors using practically the entire Cat* line, but their praise of its work is universal—from owners and superintendents to the operators who work with it.

The Cat D6 Tractor with No. 6S Bulldozer (above) is moving 1500 to 1700 cu. yds. of sandy dirt daily beneath the Hannibal Bridge. Its performance caused Frank Scholes, superintendent for Bales & Kite Construction Co., Kansas City, Mo., to put it this way:

"I don't know why I like Cat equipment better—unless it's because it does the job better and lasts a lot longer than anything else."

**'DOZING ROCK INTO TOW TRENCH** with a D6, Charles Dean, operator for Massman Construction Co., Kansas City, Mo., reported flatly: *"I'm not just a 99% Cat man, I'm 100% and it isn't because I haven't driven everything made!"*

CONTINUED ON NEXT PAGE

# WHEN CONSTRUCTION MEN AGREE

Rarely is there such complete agreement on one make of equipment among owners, superintendents and operators as reported on these pages. Caterpillar track-type and wheel-type Tractors, Motor Graders, Diesel Engines, Electric Sets, Scrapers and Bulldozers all share the praise of men working on the Kansas Citys Flood Control project.

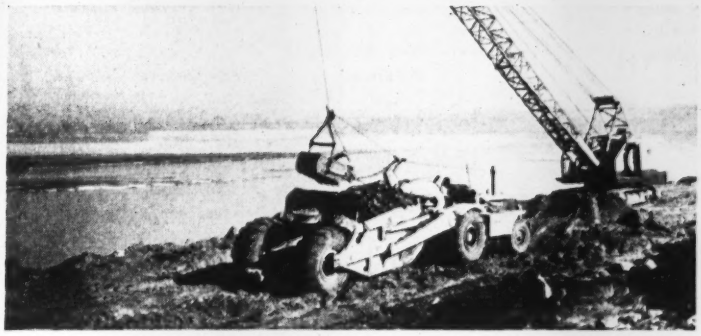
**CAT NO. 12 MOTOR GRADER** does quality work in tough, sticky soil on the new levee in Kansas City, Kans. Explains M. C. Green, general superintendent of Storms & Frew Construction Co.: *"We favor Cat machines because they take more abuse than other makes but still are easier to operate."*

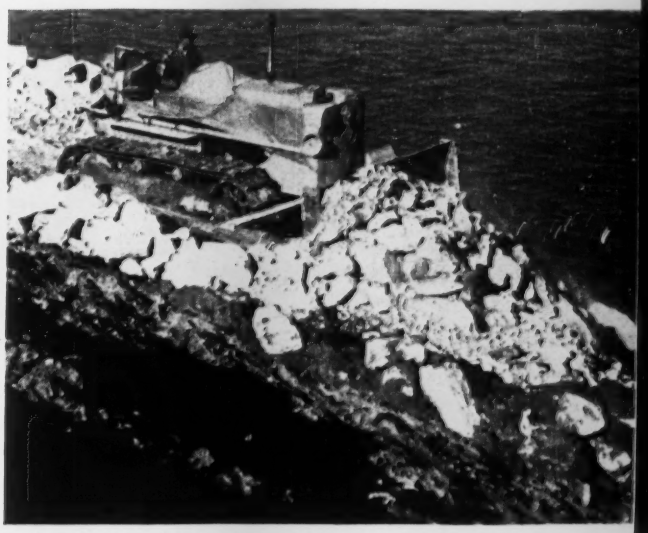
**A D13000 DRIVES TOWBOAT "JOHN THOMAS,"** owned by Massman Construction Co. The boat moves and holds in place barges with 190 tons of rock to fill tow trench in the Kaw at Turner, Kans. The operator, Alan Anderson, declared: *"The D13000 has all the power I need and it's not a noisy engine. I have to live with it, so this means a lot to me."*

**POWERFUL CAT D337 DIESEL** powers the Joy Compressor for drilling blast holes in a new quarry to obtain rock for two Kansas City levees. Rock formations include Cement City Ledge 8' deep, Raytown Limestone 8' deep, and Argentine Limestone 30' deep. Expected production: 3000 tons daily. Says J. W. Petett, superintendent for George Bennett Construction Co.: *"This compressor gives us all the pressure we need to operate two drills without running itself to death."*

**TIGHT TURNS IN SANDY SOIL** were required of this D8 with No. 80 Scraper, owned by Miller Brothers Construction Co. Despite these tough conditions, the Caterpillar unit is making 45 to 50 round trips daily with heaping loads on a half-mile haul at the Kaw's mouth. Little wonder that owner W. F. Miller says: *"In the 14 years we've been operating, we have found these tractors to be our most durable and rugged machines."*

**DRAGLINE DRIVEN BY CAT D13000** works 16 hours a day on the project. Owned by Massman Construction, this Manitowoc 1½ yd. dragline will dig a tow trench, fill it with rock, and dress the slope on the levee with riprap. Frank W. Pitz, superintendent, said: *"I think we have only one power shovel without a Cat Diesel in it. Sounds like we like them, doesn't it?"*





**SAFETY ON THE D7** is uppermost in the mind of Johnnie Stone, operating the tractor for Bales & Kite. Says Johnnie: *"I wouldn't work on a steep bank like the ones around here with any other make of tractor."* Equipped with a No. 7S Bulldozer, the D7 is 'dozing the top of the riprap as it is dumped at the mouth of the Kaw River.

**A CATERPILLAR TEAM PRODUCES** for Bales & Kite at the mouth of the Kaw. The speedy DW10 with a No. 15 Scraper dumps sand where a dragline powered by a D13000 picks it up and redistributes it. It is used on the levee face to form a foundation for rock. Production: 1000 cu. yds. daily. Says co-owner M. B. Kite: *"The best all-around machines are Cat machines. They have longer life, less down time and my men like to operate them better."*

**CATERPILLAR TRACTOR CO.**
**PEORIA, ILLINOIS**

*Both Cat and Caterpillar are registered trademarks – ®

*ADVERTISEMENT*

## Film purchase exposes
# $23,200 Theft

*(A true story based on Hartford File 121465)*

About a year ago we took on a new bookkeeper. We were pushed for time so we put him to work without looking up his references.

Soon he began drawing company checks for his own use. At first they were small. But before a year was up, they totalled more than $23,200.

Just before our annual audit was due, he quit. Before he left he had bought $200 worth of movie film for which he paid with a company check. A call to us by the film supplier about a delivery slip-up led to our discovery of his embezzlements.

Before the police caught up with him he was 1200 miles away, and very little of our money was recovered. We might have had to stand the entire loss he caused but for one thing—our "Dishonesty, Disappearance and Destruction" insurance.

Because we had this policy, the Hartford Accident and Indemnity Company made good to us the full amount of our loss—$23,232.27.

No businessman ever knows when he may be faced by serious loss due to dishonesty, disappearance or destruction.

Under a "DDD" policy, you can be insured against losses of money, securities and other property due to dishonest or fraudulent acts by employees or others, or through theft, burglary and holdup. Forgery, or the alteration of outgoing checks, drafts or notes is likewise covered, as is destruction of money or securities by any cause.

Ask your Hartford Accident and Indemnity Agent, or your insurance broker, to explain in detail how a Hartford "DDD" policy can protect *you* and *your business*. See how little it costs in proportion to the coverage it provides.

***Year in and year out you'll do well with the***

**Hartford**

**Hartford Fire Insurance Company • Hartford Accident and Indemnity Company**
**Hartford Live Stock Insurance Company • *Hartford 15, Connecticut***



out vibrating—on the arched roof forms. A thin layer of insulation and bituminous roofing cover the roof.

Consulting engineers for the mill building are R. Crooks and F. C. Michell, and the contractor is W. J. Bradshaw, all of Sydney, Australia.

## Bank loans studied

### Ex-Im and World Bank surveyed by Senate group

While Senator Capehart (R. Ind.) and his Senate Banking Committee are in Latin America on a two-month tour to study trade problems, a special Senate banking committee is working on means whereby Ex-Im and World Bank can move in to take up the slack in international financing that will stem from cutbacks in U.S. foreign aid.

The special committee wants to find out how much U.S. private banking can take over, and how much must be supported by Ex-Im and World Bank. During and following the war years, American capital has been reluctant to go abroad to finance development. As England, Germany and Japan move into world markets, U.S. exporters may find that business is going to these countries because of more favorable financing.

• **Inducement needed?**—Ex-Im may find it necessary to provide financing inducements to hold on to a lot of U.S. export business, and the Treasury Department wants the bank to bar any new development lending abroad unless private banks agree in advance to take up the notes with an Ex-Im guarantee.

On the other hand, the State Department wants the bank to be permitted to lend up to the limit of its yearly profits and repayments—about $200 million yearly. The State Department agrees that Ex-Im should try to sell more of its notes to private investors with a guarantee, but it wouldn't make prior agreement by private investors (to take notes) a prerequisite for an Ex-Im loan. Test of who's winning the battle—Treasury or State Department—will be the decision on New Zealand's application for a $20-million loan for a lumber, pulp and paper project. The special banking committee's hearings should be largely influenced by the outcome of the New Zealand loan.

Whether the recent reorganization of Ex-Im Bank has hampered its operation and whether the interests of World Bank and Ex-Im compete,

# THE ENGINEER'S REPORT

DATA

LUBRICANT RPM Gear Lubricant

UNITS Differentials, transmissions, final drives

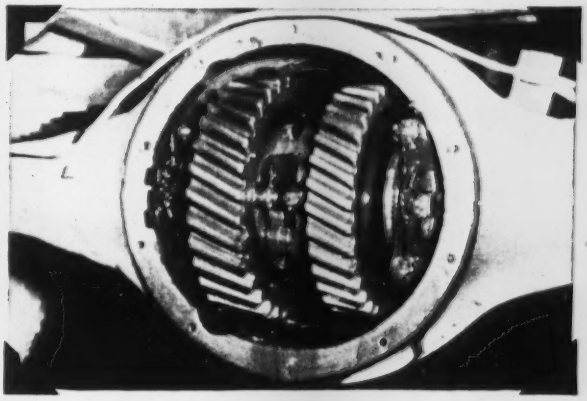
OPERATION Highway construction, hauling, etc.

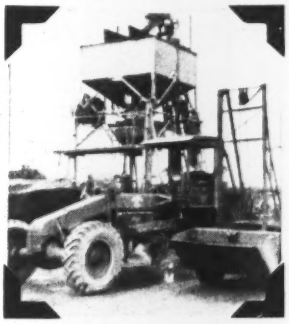
CONDITIONS Extreme overloading

FIRM Baker Trucking + Constr. Co., Richfield, Calif.

## No gear units changed in 7 years of tough work!

120,326 MILES WITHOUT ADJUSTMENT is the record of the gear unit (right) in the 2-ton truck shown above. This truck is one of 16 pieces of equipment owned by the Baker Trucking and Construction Co., Richfield, Calif. Using RPM Gear Lubricant, they have not had to change a single drive gear because of lubrication failure in more than 7 years of rough going. The truck above, for example, carries average 8-ton loads of gravel from river bed to mixing plant, then out to highway work.

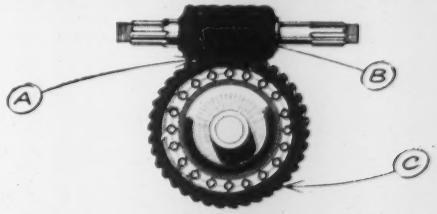




GRADERS, TRACTORS, and shovels are used by the Baker Company on tough road construction jobs in the Sacramento Valley. Working constantly in rock, gravel, and dirt, units are always in heavy dust. RPM Gear Lubricant is used in all transmissions, differentials, and final drives—reduces wear, keeps them on the job.

REMARKS: Because RPM Gear Lubricant has very high oiliness qualities and stability, it is especially valuable for the lubrication of all conventional gears. It is also recommended for bronze worm gears. (For hypoids of all kinds, RPM Multi-Service Gear Lubricant is recommended.)

### How RPM Gear Lubricant prevents wear in conventional and worm gears




A. Made from paraffine stocks with special compounds that help provide a tough film—gives extra tooth protection, withstands shock and overloads.

B. Has high resistance to oxidation—resists deposit formation, assures lubrication in high temperatures.

C. Contains foam inhibitor—prevents expansion and high gear-case pressures.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

**STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso**
**THE CALIFORNIA OIL COMPANY, Barber, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado**

# The Surveyor's Notebook

*Reporting on Unusual Surveying Problems and Their Solutions*

Notekeeper: W. & L. E. Gurley, America's Oldest Engineering Instrument Maker

## Gurley Transits Set Gold Cup Course

*"Men behind the buoys": Phil Bessor (with chart) and BMC Lester Green discuss course. Bessor says: "We especially appreciated the Gurleys on mile shots where accuracy was the same as at 500 ft."*

"For three consecutive years now, the accuracy of the Gold Cup Regatta course has depended upon Gurley transits," reports Phil S. Bessor, Registered Engineer and Land Surveyor of Bellevue, Washington. "In 1951, '52, and again in '53, we were commissioned to design and lay out the race course on Lake Washington, Seattle. In '53, the course was 3¾ statute miles.

**"Long before the buoys were set,** there were many technical problems to be solved. The course had to be drawn and approved by the American Power Boat Association in Detroit. Curves had to be far enough from shore to prevent spectator mishaps. Naturally, we also kept in mind the best possible course for spectator viewing—as well as location of underwater cables, bridge clearances and the like.

"The Coast Guard tender *Rhododendron* worked with us in setting the 22 marker buoys which were anchored by 1450-pound iron balls. We used walkie-talkie communication between ground-based transitmen and the buoy placers aboard ship.

*"Four feet starboard...two feet to port": transitman walkie-talkies instructions for laying buoys to tender. Even in fog, buoys were easily spotted with Gurleys.*

"All buoys were set by triangulation, using three Gurleys—two transits on the Seattle shore line, a third on Mercer Island. All points were USC&GS monuments. Some were set as far back as 1901, so they were rerun and checked. Some shots were as great as 7300 feet, and setups were as long as nine and one-half hours at a stretch. We worked in hot and cold weather, wet and dry—with water as deep as 378 feet.

**"On the morning of the big day,** we set up again, and checked once more to make sure the buoys were still on line. We saw the race only through our transits, since we checked constantly to see if the markers had moved. After the race, the course was again checked for the official report.

"With the great accuracy required, the long distance shots, the time and weather and many other elements, I was glad to have Gurley transits on the job, just as I was when first using a Gurley 23 years ago."

**"The Surveyor's Notebook" collection is packed with unusual stories like this—*plus* many helpful surveying tips and field problems. Write for your free copy of Series 2.**

### "Want to trade in your present instrument?"

Many surveyors have asked us if it is possible to trade in an old transit or level on a new Gurley instrument. We will be pleased to receive your serial number and a brief description of your present instrument. Our answer by return mail will give details of our offer in your case.

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are two major points that the special committee is studying. The reorganization of the bank clearly removed policy making from the managing director of Ex-Im so that he can't make a loan without clearing it before the National Advisory Council headed by the Secretary of the Treasury. The effect of this reorganization has been to freeze the bank's funds, and the special committee may produce legislative recommendations calling for a change in investing policies for the bank.

## Syrian government objects to Israeli hydro plan

Israel's $6-million Lake Huleh hydroelectric scheme on which work began in September, has brought an appeal from Syria to the United Nations that construction be stopped on a canal to carry water from the Jordan River to the power plant near the shores of the Sea of Galilee. Part of the 10-mile concrete-lined canal, lying roughly parallel to the Jordan as it diverts river water between Lake Huleh and the Sea of Galilee, will run through the demilitarized zone between Syria and Israel.

The hydro scheme utilizes the drop in the Jordan from Lake Huleh to the Sea of Galilee by taking river water in the canal to a point about two miles from the Sea of Galilee where the water will drop about 660 ft through a hydro station. Tail water will flow back into the Sea of Galilee.

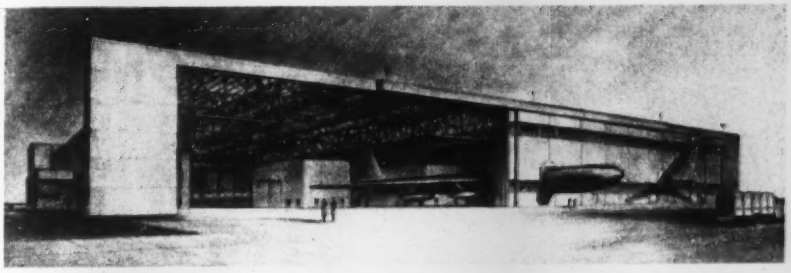
The United Nations Truce Supervision Mission in Palestine has asked that construction on the canal be held up until an agreement with Syria can be negotiated. The complaint is the latest development in a two-year dispute between Israel and Syria. The latter has charged that the hydro project, by diverting waters from the Jordan will damage near-by Syrian lands and that the construction of the canal violates the demilitarization provisions of the 1949 truce agreement between the two nations.

While the United Nations Commission in Israel is negotiating an agreement, Israel is continuing construction on the canal.

## International briefs . . .

• **Kenya refinery**—A $210-million oil refinery is being planned by the Anglo-Saxon Petroleum Co. for construction in Kenya, East Africa. The site for the refinery, near Mombasa on the coast, has been designated as land under control of the Crown. Kenya's government has been empowered to grant


HOW FRANKI FOUNDATION COMPANY Saved $200,000 for the U.S. Corps of Engineers



Heavy Bomber Hangar, U. S. Corps of Engineers, Limestone, Maine; Architect-Engineers—The Kuljian Corp., Phila., Pa.; General Contractors—Albert A. Lutz Co., Inc., New York.

The construction of this heavy bomber hangar at Limestone, Maine, presented difficult problems. The original foundations designed for this project would have required considerable "cut and fill" to provide the necessary level and finished grade for the structure. Other considerations, which complicated matters, were the concentrated loads in the four towers, the door pockets and varying footing elevations.

Franki undertook the problem—offering an alternate foundation design based upon Franki Pressure Injected Footings, which would be installed after the fill was placed. 260 caissons, with a design load of 120 tons each and averaging 30 feet in length, were installed.

On the basis of this alternate, the low-bidding and winning contractor offered a credit of $200,000 to the U. S. Engineers. Proof again that Franki Pressure Injected Footings are first for safety and economy.

. . . LIGHTEN YOUR COSTS . . . INCREASE YOUR LOAD! . . .

Send for "Franki Facts" for complete information about this U. S. Corps of Engineers project—and an illustrated booklet describing the Franki Foundation method in complete detail. Write Franki Foundation Company, 114 East 40th St., New York.

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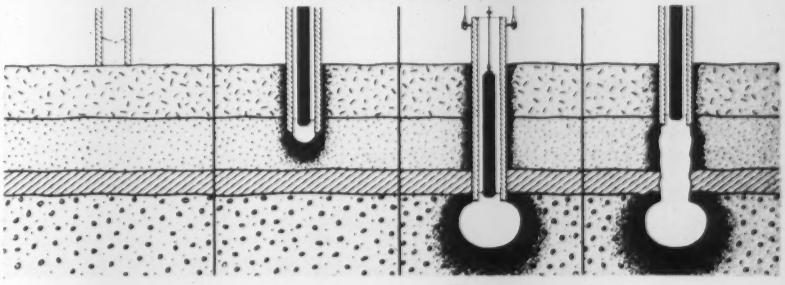

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There's an ESCO Box Point and Adapter to fit any standard dipper or bucket. Choose from six exclusive point shapes — widths from 3" to 7" — that give maximum digging efficiency and longer point life in every digging condition. *ESCO Box Points start sharp, stay sharp.*

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additional areas to the company within the next 10 years.

• **Indian bridge**—Bids are about to be asked for the construction of a $33-million railway bridge project across the Ganges River at Mokameh, 100 miles east of Patna, capital of the state of Bihar. The bridge itself will be one mile long with about 600-ft spans and will cost around $14-million. But because of the floods on the Ganges which widen the river to several miles, earthworks costing some $6 million will have to be built at the bridge site to hold the river. Approaches and trans-shipment yards, needed because of the difference in railway gage on either side of the river, will cost another $13 million to finish the project. The bridge will be the only one for 600 miles along that stretch of the Ganges.

• **Turkish airfields**—An $11-million contract has been awarded to P. Kretzer & Son of Flushing, N. Y. City, for the construction of three airfields at Eskisehir, Konya, and Diyarbakir. The American firm will work in cooperation with the Yol-Yapi construction firm of Istanbul and the Sollel Boneh Company of Haifa, Israel.

• **Colombian harbor works**—The Colombian government is seeking a $6-million loan from the World Bank to carry out extensive improvements at the port of Barranquilla on Colombia's north coast. It is believed that the improvement in ship handling facilities would save an annual $7 million now lost in delays to incoming and outgoing harbor traffic.

• **Subway for Lima**—The French firm Societe Generale de Traction et d'Exploitation (Metro of Paris) is preparing plans for the municipality of Lima for the construction of a $66-million subway for the capital city. It will run underground in built-up areas and in open cuts in sections still awaiting urban development. The subsoil in Lima is a loose earth and rock formation, and the ground water table lies at a depth of about 160 ft.

• **Quay for the Tiber**—Italy's famous Tiber River is being hemmed in at Rome with the construction of a 7-mile quay on one bank which will channel river flow to stop silting. When completed in 1955, the $3.3-million quay will narrow the river so that the higher flow rate will prevent silting at that critical point and also would allow use of the river as an inland waterway.

## OBITUARIES

**W. L. Hutcheson,** 79, for 36 years general president of the AFL Carpenters Union and a major figure in American labor, died in Indianapolis, Oct. 20. He resigned the presidency of the 822,000-member union Jan. 1, 1952, and was succeeded by his son, Maurice A. Hutcheson.

**Joseph P. Tufts,** 51, who resigned recently as special assistant to the Housing Administrator in charge of defense housing, died at Long Beach, Calif., Oct. 12. Mr. Tufts received his bachelor's degree from Baker University, Baldwin City, Kan., and his master's from Boston University. He joined the Pittsburgh Housing Association in 1929. In 1941, he went to the Office of Price Administration as chief of the rent control section. He later served as chief of the housing branch of the War Production Board.

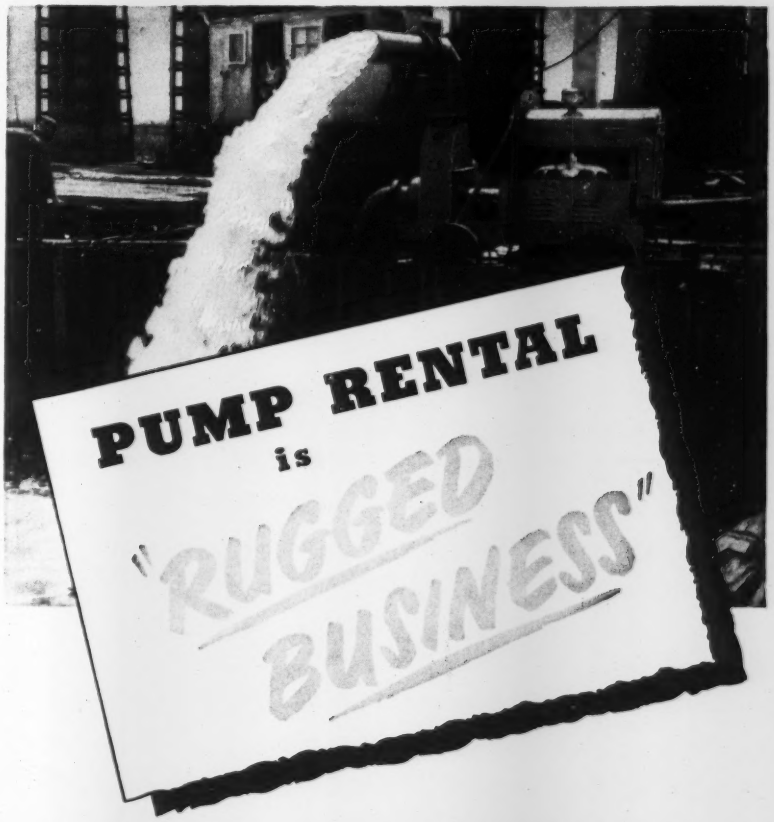
**J. Herbert Davies,** 51, Long Beach, Calif., consulting engineer, died Oct. 7. Holding two engineering degrees from Ohio State, Davies worked with that state's division of highways before going to California. He was a structural engineer with the Long Beach building department for six years before opening his own office in 1933. He was engineer on bridges, industrial and commercial buildings, schools and other public buildings, airports, and military installations.

**Edward B. Baur,** 61, engineer of construction for the state highway department in northwestern Ohio, died Oct. 4 at Hillsdale, Mich. A lifelong resident of Toledo, Ohio, he had worked in the city and county engineers' offices before joining the state highway department where he was employed for 20 years.

**Sheldon Lang,** 35, a consulting sanitary engineer formerly associated with the U. S. Public Health Service, died Oct. 1. His home was Great Neck, L. I. A graduate of the Cooper Union, he had been a guest lecturer at Manhattan College, New York University and Yale University.

**Raymond D. Lepley,** 61, a construction engineer with the Atlantic Refining Co., died Sept. 22 at Philadelphia.

**David Fettes,** 88, for many years chief superintendent of construction and charter associate of Albert Kahn Associated Architects & Engineers, died in Detroit, Oct. 8. He started with Al-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of Hennessey-Forrestal Machine Co. of St. Louis, Mo.

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501

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RIDGEWOOD, NEW JERSEY
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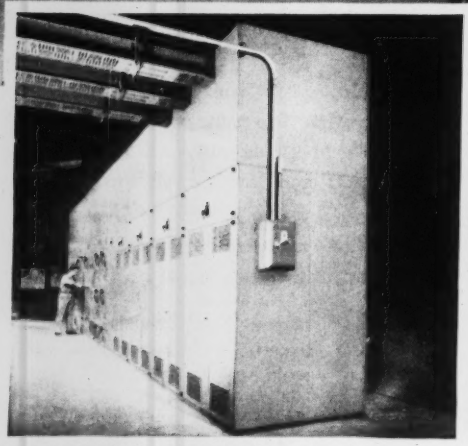
Distributors and Dealers everywhere

Team from Westinghouse Pittsburgh Office (left to right): R. E. Weaver, Panelboard & Bus Duct Application Engineer; J. X. Britton, Westinghouse Electric Supply Co. Representative; H. J. Mazur, Lighting Application Engineer; J. M. Miller, Construction Supervisor.

HERE'S PART OF THE EQUIPMENT THIS TEAM HELPED CO-ORDINATE IN PITTSBURGH'S GATEWAY CENTER



Main building-type distribution switchboard and bus duct.

Lighting panelboard, on the left, and power panelboard.

# This team cut contractor headaches on Pittsburgh's Gateway project

Recent completion of the first three buildings in the multi-million dollar Gateway Center represents a major stride in Pittsburgh's metropolitan expansion program. Equally significant is the part Westinghouse co-ordinated teamwork played throughout the entire project.

This team operation was launched during the blueprint stage in New York—headquarters of the project's architects, consulting engineers and electrical contractor (Lord Electric Co.). There, a force from the Westinghouse New York Office moved into action. It helped plan Gateway's distribution system and work out specifications for a complete line of electrical equipment.

When ground was broken in Pittsburgh, teamwork responsibility shifted easily and without interruption to the Westinghouse Pittsburgh Office where the four specialists, at left, took over on-the-site co-ordination. Working closely with the contractor's Pittsburgh organization, they:

1. Saw that the electrical distribution equipment and lighting fixtures from four Westinghouse plants arrived on time and met all specifications.
2. Checked plans and specification changes with the contractor during construction.
3. Provided specialized product application assistance whenever it was needed.
4. Served as a liaison between the local contractor, his New York headquarters and the consulting engineers.

Combined, these services spell *undivided responsibility.* Regardless of where the original electrical plans and specifications are drawn up, Westinghouse co-ordinated teamwork provides the vital link—transfers that responsibility to your location when the job gets underway.

The Construction Application Engineer in your nearest Westinghouse Office is the key. One call to him will bring a team—ready to relieve you of many headaches on your next project. J-94003

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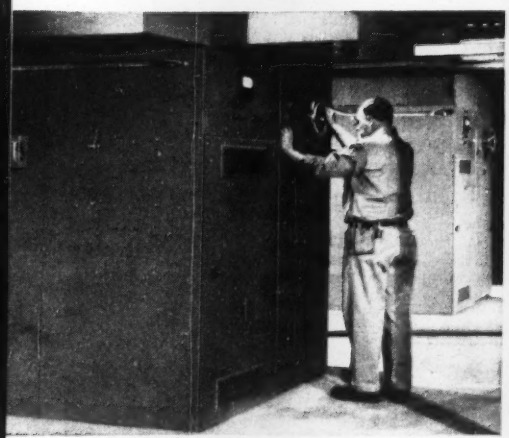

Low-voltage control for 1500-hp air-conditioning motors.

Modern recessed troffer fixtures for general office areas.

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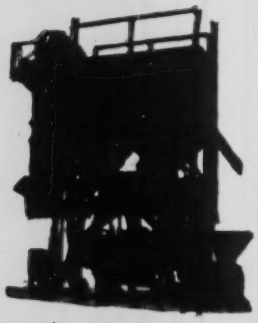

(Above) The Model 863, semi-trailer mounted for complete portability.

(Left) The Model 864, tower type for use where portability is not the prime consideration.

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Never before has gradation control—plus maximum portability and the established advantage of continuous mix—been combined in this capacity range.

Two Gradation Control Units are furnished: (1) the Model 863 where portability is paramount; and (2) the Model 864 Tower Unit where portability is not so important. Being semi-trailer mounted, the Model 863 is completely portable. The Model 864 is designed in sections for easy hauling on truck or trailer. Both units screen and separate the aggregate up to three sizes (four-bin operation on tower type plant optional) . . . then accurately measure the aggregate and feed the required percentage of each size to the mixer.

53-3A-B

**Barber-Greene** BG

*Aurora, Illinois, U. S. A.*

## OBITUARIES

bert Kahn in 1906 as a superintendent of construction. In later years he directed as many as 100 superintendents on Kahn-designed projects for America's expanding production. Among the plants built were those of leading automobile manufacturers—Packard, Hudson, Continental, Ford, Dodge and General Motors. Mr. Fettes retired in 1946.

**Harry Gibson Greene,** 70, graduate of Georgia Tech in 1906, educator, and engineer with the Georgia Highway Department, died Oct. 7 at his home in Atlanta. He served with the U. S. Quartermaster Corps in Washington, D. C., as a civilian engineer during World War I and with the War Production Board in Atlanta during World War II.

**Carl C. Cooman,** 61, head of the civil engineering program at Rochester Gas & Electric Corp., Rochester, N. Y., died Oct. 7. He specialized in structural steel and concrete design, having been called upon to solve engineering problems for government and private industry. He was graduated from Cornell University in 1915, and joined the utility in the early 1920s.

**Thomas V. Hylant,** 40, a New York State Department of Public Works service engineer, died in Buffalo, N. Y., Sept. 13. He had been employed on the level bridge project in Buffalo.

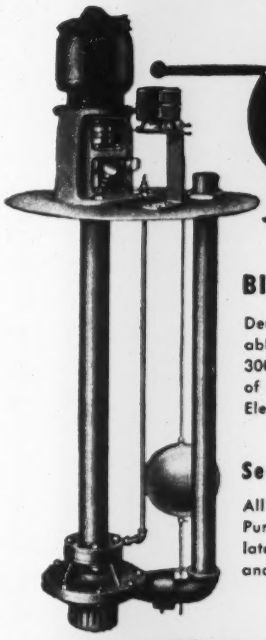
**George H. Beebe,** 83, retired civil engineer died in Boulder, Colo., Oct. 9. He was a graduate of Rensselaer Polytechnic Institute and from 1899 to 1917 he was superintendent of the Syracuse, N. Y., water department. He had an important part in developing the city's water system.

**Nathan Mueller,** 73, an assistant engineer in the Pittsburgh Department of Public Works, died Sept. 16. He was a civil engineering graduate of Carnegie Tech.

**William A. Collins,** 54, Beloit, Wis., city engineer, died there Sept. 30. A city employe since 1924, he had been street superintendent and superintendent of public works before becoming city engineer.

**Earl Fryman,** 69, a civil engineer for the Pennsylvania R.R. for 30 years, died in Fort Wayne, Ind., Oct. 1.

**Russell W. Hoffman,** 51, office engineer for the Metropolitan Sewer District, Louisville, Ky., died Sept. 26.

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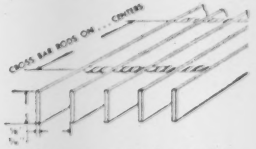


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BLAW-KNOX ELECTROFORGED STEEL GRATING

# CONSTRUCTION REPORTS

## Bids Asked—Low Bidders—Contracts Awarded—First Section—

*Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager*
*J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M E SCIORRA, F S. DEMBEK, Reports.*
*J. H. WEBBER, M R. ROESSLER, E R. HUBER, Statistics.*

## NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† Mass., Weymouth—STRUCTURES—B.A. 11/17—Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, rehabilitation and addns. to structures—Increment No. 2, U. S. Naval Auxiliary Landing Field, South Weymouth, NOY 77756, Spec. 36693. Plans deposit $60. CD 9/29/52.

▲ Mass., Boston—B.A. 11/19—Commonwealth of Mass., Metropolitan Dist. Comn., 20 Somerset St., Boston, Contr. 193, city water tunnel exten. 250-400 ft. below ground, Newton and Malden. $12,000,000. CD 5/12/44.

BIDS ASKED—BUILDINGS

Mass., Framingham—AUDITORIUM and GYMNASIUM—B.A. 11/6—State, Dpt. Educ., 200 Newbury St., Boston, 2 story, masonry auditorium and gymnasium addn.; alterations, State Teachers College, $625,000. Plans deposit $50 refundable. John M. Gray Co., 175 High St., Boston, archt. CD 2/20/52.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Fanning & Doorley Constr. Co., Inc., 274 Kinsley Ave., Providence, R. I. LB $1,078,045, est. $1,500,000. water sys. imprvs., BROCKTON, MASS. City, Water Dpt., City Hall, Brockton, Mass. Bids Oct. 14. CD 9/29.

### BUILDINGS

LOW BIDS AND CONTRACTS

▲ Sanders Constr. Corp., 415 Congress St., Portland, Me., CA $8,000,000. third unit addn. to Schiller Mercury STEAM PLANT, near PORTSMOUTH, N. H., Public Service Co. of New Hampshire, Manchester, N. H.

A. Cefalo & Son, 42 Bennett St., Lynn, Mass. CA $710,-861, est. $700,000. high SCHOOL, WESTFORD, MASS. Town, School Bldg. Comn., Edw. M. Abbott, chn., Academy Bldg., Westford, Mass. CD 9/18, under LB.

E. J. Cross Co., 15 Prescott St., Worcester, Mass. LB Est. $500,000. home OFFICE, 49 Elm St., WORCESTER, MASS. Worcester Mutual Fire Insurance Co., 29 Elm St., Worcester, Mass. Bids Oct. 1. CD 9/29.

Anderson Faircoaks Constr. Co., 145 S. Marshall St., Hartford, Conn., CA $629,000, $51,000 4 addnl. rooms Greene Hills SCHOOL, BRISTOL, CONN. City, Bd. Educ., Senior High School, Bristol, Conn. Bids Oct. 7 CD 10/14, under LB.

## MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

NEW JERSEY and PENNSYLVANIA—B.A. 11/12—Delaware River Port Auth., Administration Bldg., Bridge Plaza, Camden, N. J.

Contract No. 5, cables and suspenders for suspension bridge over Delaware River connecting Packer Ave., Phila., Pa. and Gloucester City, N. J. Plans deposit $10. CD 9/26/52.

NEW JERSEY—B.A. 11/24—New Jersey Turnpike Auth., Administration Bldg., New Brunswick.

Essex and Hudson Counties—Contract N-1, constr. 4 main span piers and 15 east approach piers for Newark Bay Bridge on Holland Tunnel extension of N. J. Turnpike, Newark and Jersey City.

Contract N-3 west approach piers for Newark Bay Bridge on Holland Tunnel extension of N. J. Turnpike.

Contract N-4 east abutment and 16 piers for New Bay bridge on Holland Tunnel extension of New Jersey Turnpike, Newark and Jersey City. Plans deposit $15 each. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y., engrs. CD 8/20, under Streets and Roads.

† New Jersey—B.A. On or About 11/24—U. S. Eng., 121 North Broad St., Phila. 1, Pa., stone protection North Bulkhead at Manasquan Inlet. Inv. No. Civ Eng-36-109-54-16. Extended date. CD 9/30.

NEW JERSEY—B.A. 12/8—New Jersey Turnpike Auth., Administration Bldg., New Brunswick.

Essex and Hudson Counties—Contract N-2, superstructure steelwork for Newark Bay Bridge on Holland Tunnel extension of New Jersey Turnpike, Newark and Jersey City. Plans deposit $15. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y., engrs. CD 8/20, under Streets and Roads.

▲ † N. Y., Plattsburg—AIRFIELD FACILITIES—B.A. About 12/22—U. S. Eng., 80 Lafayette St., New York, Zone 13, airfield facilities, Plattsburg Air Force Base, Serial No. ENG 30-075-54-75. $25,000,-000. Seelye, Stevenson, Value & Knecht and Shreve, Lamb & Harmon Assoc., 101 Park Ave., New York Zone 17, engrs.-archts. CD 10/15/52.

† N. Y., Watervliet—GAGE STORAGE, etc.—B.A. About 1/14—U. S. Eng., 80 Lafayette St., New York, Zone 13, gage storage and design bldg., Watervliet Arsenal. $500,000-$1,000,000. Raymond & Rado, 101 Park Ave., New York, Zone 17, archts.

▲† N. Y., Syracuse—BARRACKS, etc.—B.A. About 2/4—U. S. Eng., 60 Lafayette St., New York, Zone 13, barracks, fuel storage and apron, Hancock Field. $1,000,000-$3,000,000. Mayer & Whittlesey, 31 Union Square West, New York, Zone 3, archts.

BIDS ASKED—BUILDINGS

D. C., Wash.—FIRE HOUSE—B.A. 11/3—D. C. Govt., Director Bldgs. & Grounds, 499 Pa. Av. N.W., Wash., D. C., Engine Co. No. 30 and Truck Co. No. 17, Central Ave. and 49 St. N.E. Plans deposit $25.

▲ D. C., Wash.—OFFICE—B.A. 11/24—National Education Assoc., 1201 16 St. N.W., 8 story office $5,000,-000. Joseph Saunders, 121 S. Columbus St., Alexandria, Va., archt. CD 12/23.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Thomas P. Spagnoletti, 14 Denton Rd., Binghamton, N. Y. LB $223,662, est. $248,000, S. H. 590-Fosterville, Co. Rd. 10, Fosterville-Throopsville Co. Rd. 10, FASS. 51-25, 1.76 mi. FASS. 53-16, FASS 53-17P, Cayuga Co.;

Potter-DeWitt Corp., Pavilion, N. Y., LB $713,889; est. $737,000, Lake Ontario State Parkway; Sect. C, East Manitou Rd., 0.97 mi. LOSP. 53-4, Monroe Co.;

Dan-Bar Contg. Co., Inc., 220 Pulawski St., Syracuse, N. Y., LB $134,529, est. $150,000. Evans Mills-Chaufty's Cors. (Co. Rd.). 1.99 mi. FASS 53-15, Jefferson Co. Bids Oct. 15. CD 9/23.

Cassa Contg., Corona 68, N. Y., LB $112,181, est. $115,000. landscaping and misc. work 5.6 mi. Bronx River Parkway (Southerly Exten.) Cont. 2, FA. BRP. 53-1, Bronx Co., NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Oct. 15. CD 9/23.

▲ NEW YORK—Jones Beach State Parkway Auth., Admin.-Headquarters, Belmont Lake State Park, Babylon,

Tully & DiNapoli, Inc., 127-50 Northern Blvd., Flushing, N. Y., LB $2,184,903, Southern State Parkway Imprvt. Contr. 5, Nassau Co. Bids Oct. 14. CD 9/23

▲ Mason Hangar Co. Inc., Arthur A. Johnson Corp., MacLean Grove & Co., Grand Central Terminal, New York, N. Y., CA $17,260,370. Contr. LT-160-006, constr. river tunnel New Jersey rock tunnel and ventilation shaft for third tube of Lincoln Tunnel, NEW YORK and NEW JERSEY. Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Oct. 13. CD 8/14, under LB.

### PROJECTS COVERED

*Projects—By Size*

**Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.**

*Classes of Construction*

(Name In order of Listing)

| | |
|---|---|
| Water Supply | Latin America |
| Sewers, Waste Disposal | Public Buildings |
| Bridges | Commercial Buildings |
| Streets & Roads | Industrial Buildings |
| Earthwork, Waterways | Unclassified |

*Stages Reported*

**PROPOSED WORK: Including appointment of engineers or architects.**

**BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.**

**LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects inviived except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.**

**CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.**

**Dates shown are of issue in which last previous report was published.**

*Symbols and Abbreviations Include:*

| | |
|---|---|
| † | Federal Government |
| ▲ | Project of $1,000,000 or over. |
| B.A. | Bids Asked |
| ENR | Engineering News-Record |
| CD | Engineering News-Record Construction Daily |

▲ NEW JERSEY—New Jersey Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

Brann & Stuart Co., Suburban Station Bldg., Phila., Pa., LB, $1,239,104, pre-assembly type bridge to carry D. L. & W. R. R. tracks over Garden State Parkway at Oratan Parkway and Arlington Pl., Contract 98 East Orange, Essex Co. Bids Oct. 9.

NEW JERSEY—New Jersey Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

Franklin Contg. Co. Inc., 12 Central Ave., Newark, N. J., LB, $836,365, Contract No. 39, grading, drainage, paving at Routes 35-36 interchange on Garden State Parkway, Keyport, Monmouth Co. Bids Oct. 15. CD 10/6.

▲ NEW JERSEY—New Jersey State Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

Francis A. Canuso & Sons, 173 W. Roosevelt Blvd., Phila., Pa., CA, $1,671,187, paving 3.746 mi. U.S. Route 130 from Berkley Rd. to Repaupo Rd. Greenwich and Logan Twps., Gloucester Co. Bids Oct. 6, awarded Oct. 14. CD 10/14, under LB.

▲ NEW JERSEY—New Jersey State Hy. Dpt., 1035 Parkway Ave., Trenton

Grow Constr. Co., Inc., 315 W. 53 St., New York, N. Y., LB, $1,665,439, grading, paving and bridges from Section 6-C of U.S. Route 9W from Linwood to Lemoine Aves. and connection to Palisades Interstate Parkway, Fort Lee, Bergen Co. Bids Oct. 13. CD 9/23.

▲ NEW JERSEY—New Jersey Hy. Auth., State Hy Dpt. Office Bldg., 1035 Parkway Ave., Trenton,

George M. Brewster & Son, Inc., 275 W. Fort Lee Rd., Bogota, N. J., LB, $4,852,590, grading, paving 23 mi. southbound roadway, Garden State Parkway, Cape May Co. Bids Oct. 15. CD 9/25.

John Z. Barton, Inc., 317 W. Market St., York, Pa. LB $188,300, est. $150,000. steam generation and electrical distr. sys. addns. at Pennsylvania State College, STATE COLLEGE, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Oct. 14. CD 9/30.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

W. E. Graham Constr. Co., Cleveland, N. C. CA $637,-473. grading, drainage, surf. 2.885 mi. dual hy. U.S. Rte. 40 New Market-Ijamsville, Contr. F 537-3-715, Frederick Co. CD 9/21, under LB.

Charles H. Tompkins Co., 906 16 St. N.W., Wash., D. C., LB, $247,800, sewage treatment plant addns., chlorination plant, Unit 20, structures and equipment at Blue Plains, WASH., D. C. Director of Sanitary Eng., 499 Pa. Ave. N.W., Wash., D. C. Bids Oct. 9. CD 9/15.

### BUILDINGS

LOW BIDS AND CONTRACTS

▲ Paul J. Roche, Inc., 1800 Newbridge Rd., Bellmore, N. Y., CA $1,021,590, three ELEMENTARY SCHOOLS, 1 on Flower Hill Rd., 1 on Whitsum Rd. and other Southdown Ave. and Browns Rd., HUNTINGTON, N. Y. Bd. Educ. Huntington Union School Dist. 3, Huntington, N. Y. Bids Sept. 25.

▲ Friederich & Son Co. Inc., 710 Lake Ave., Rochester, N. Y., CA Est. $1,000,000. 100,000 sq. ft. PLANT, ROCHESTER, N. Y. Consolidated Vacuum Co., 725 Ridge Rd., West Rochester 3, N. Y.

▲ Rye Gardens Homes, c/o Gustave W. Iser, archt., 95 Madison Ave., New York, Zone 16, N. Y. Owner Builds. $2,000,000. 90 HOUSES on tract at Boston Post Rd. and Parkway Dr., RYE, N. Y.

Hallmark Homes, c/o E. J. Cappello, archt., 45 Middleneck Rd., Great Neck, N. Y. Owner Builds. $800,000. 20 HOUSES on tract on south side of Port Washington Blvd., SANDS POINT, N. Y.

Murray Manor Homes, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. $800,000. 58 HOUSES on tract on Carmen Ave. between Old Country Rd. and Hempstead Turnpike, WESTBURY, N. Y.

▲ Maplemoor Estates Homes, c/o Max M. Simon, archt., 1841 Broadway, New York 23, N. Y. Owner Builds. $3,000,000. 120 HOUSES on tract on North St., WHITE PLAINS, N. Y.

Genola Builders, Inc., c/o William G. Chirgotis, archt., 968 Stuyvesant Ave., Union, N. J. Owner Builds, $500,-000, Sunset Lake Terrace Co-operative Apartments for 52-families, Sunset and Park Aves., ASBURY PARK, N. J.

Pine Crest Manor Homes, c/o Rudolph L. Novak, archt., 713 Main Ave., Clifton, N. J. Owner Builds, $750,000. 26 HOUSES on tract on Werimus Lane, WOODCLIFF LAKE, N. J.

▲ C. C. Davis Constr. Co., Rear 220 Bridge St., New Cumberland, Pa., CA $1,482,830, general constr. 1 story 250x480 ft. GARAGE and WAREHOUSE, 22nd and State Sts., for state storage and automotive service, HARRISBURG, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Sept. 16, awarded Oct. 15. CD 9/22 under LB.

▲† Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. rejected bids Aug.

12, 36 in. water tunnel bldg., 3 story, bsmnt. structure at David W. Taylor Model Basin, Contr. NOY 73362, CARDEROCK, MD. LB $1,058,000. CD 8/20, under LB.

## SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

.., Winchester—B. A. 11/9—City, Common Council, City Hall, 3 m.g. steel water reservoir on fdn. prepared by others. Plans deposit $25. Alexander Potter Assocs., 50 Church St., New York, N. Y., consult. engrs.; adv. ENR 10/29. CD 10/27/50.

BIDS ASKED—BUILDINGS

Va., Portsmouth—BUILDING REPAIRS—B.A. 11/10—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, repairing Bldg. 172 at Norfolk Naval Shipyard, NOY 80130, Spec. 40476. Plans deposit $10.

N. C., Fort Bragg—PARACHUTE STORAGE, etc.—B.A. On Or About 11/23—U. S. Eng., 308 Customhouse, Wilmington, structural steel framing and masonry parachute storage and issue bldg., Inv. No. Eng-31-075-54-1. Plans deposit $5.20. CD 12/26/51.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ressure Conc. Co., Florence, Ala., LB $66,300, Base Bid, Sect. 6;

Norman A. Smyth Co., 404½ S. Tryon St., Charlotte, N. C., LB $52,233, Alt. bid, Sect. 6;

Glenn Constr. Co., Liberty Life Bldg., Charlotte, N. C. LB $158,657, Base Bid c.i. pipe, Sect. 7; LB $155,182, Alt. transite pipe, Sect. 7, for WW and sewer imprvs., CAROLINA BEACH, N. C. Town, A. L. Mansfield, mayor, Carolina Beach, N. C. Bids Oct. 2. CD 10/13, under LB.

FLORIDA—State Road Dpt., Tallahassee,

Wright Contg. Co., 504 25 Ave., Columbus, Ga., CA, $895,895, 2.034 mi. State Rd. 600, Job 1610-202 and 1610-301 UI 007-1 (3) and UGI 007-1 (4), Polk Co. Bids Sept. 10. CD 9/16, under LB.

### BUILDINGS

LOW BIDS AND CONTRACTS

▲ Urban Development Corp., 2032 Belmont Rd. N.W., Wash., D. C. Owner Builds. Approx. $1,125,000. 75 one story masonry RESIDENCES to be built in sections, ARLINGTON, VA. John Petter, 826 Connecticut Ave. N.W., Wash., D. C., archt. R. Rouse, c/o owner, engr.

Bernard Jaffe, 8632 Sturgis St., Norfolk, Va. Owner Builds. Approx. $550,000. 51 one story frame RESIDENCES, NORFOLK, VA.

▲ Lionel F. Favret, 937 Gravier St., New Orleans, La. CA $2,534,167. brick, rein.con. HIGH SCHOOL, Phoenix, GRADE SCHOOLS at Scotville and Sunrise, POINTE-A-LA-HACHE, LA. Plaquemines Parish School Bd., Pointe-a-la-hatche, La. CD 10/13, under LB.

▲† James I. Barnes Constr. Co., 6 Bechtel Ave., Springfield, O. LB $1,072,532, est. $1,359,852, base bid.

Robert Simmons Constr. Co., 840 Barrett Ave., Louisville 4, Ky. LB $1,156,000, est. $1,456,112, alternate bid. Heavy tank and artillery SHOP, (alternate incl. automatic sprinkler sys., 10,000 sq. ft. concrete and fence), FORT KNOX, KY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids Oct. 13. CD 9/4.

## MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ Ill., Chicago—SUBWAY TUBES—B.A. 11/5—City, City Hall, twin subway tubes from West Bank of Chicago River to Desplaines St., along Route Congress St. Superhighway, $3,000,000. CD 6/12/52.

† Illinois—B.A. 11/10—U. S. Eng., 420 Locust St., St. Louis 2, Mo., stone dike and bank protection Mississippi River, Chain of Rocks Canal, Madison Co., CIVENG-23-065-54-43. CD 12/8.

BIDS ASKED—BUILDINGS

▲ Wis., Milwaukee—Y.M.C.A.—B.A. 11/17—Young Men's Christian Assn., 633 N. 4 St., 11 or 18 story, concrete, steel, brick, Central Young Men's Christian Association building. $3,500,000. Grassold-Johnson & Assocs., 734 N. Jefferson St., Zone 2, archts. CD 3/7/52.

▲ O., Middletown—HOSPITAL—Bids Asked—Middletown Hospital, Middletown, hospital addn. $2,000,000. CD 1/22/52.

SOON LETS CONTRACT—BUILDINGS

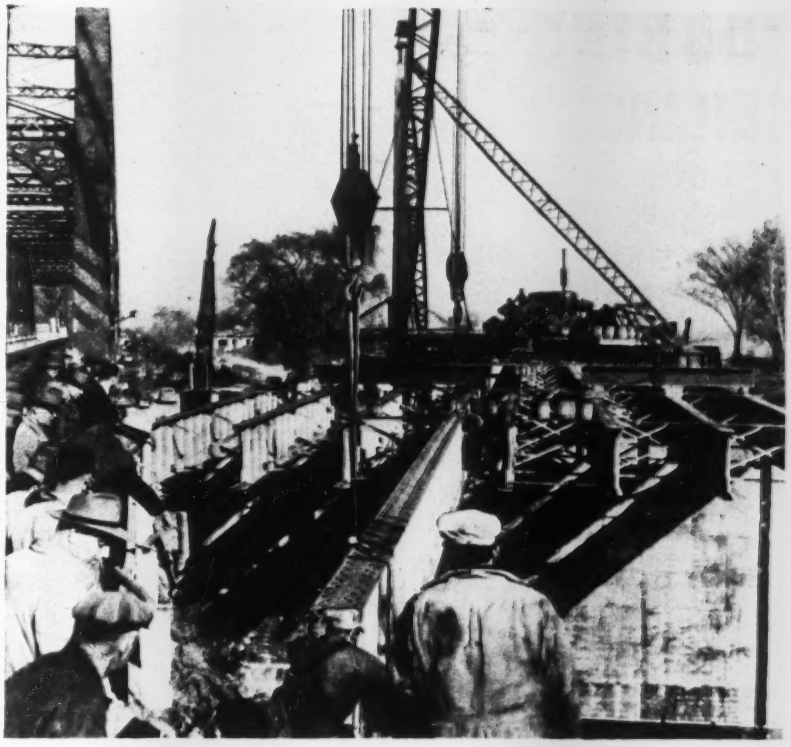
▲ Ill., Chicago—RESEARCH LABORATORY—Michael Reese Research Foundation, 29 and Ellis Sts., soon lets contract research laboratory. $1,500,000. A. Epstein & Son Co., 2011 Pershing Rd., Chicago 9, Ill., archt. CD 5/12/52.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—Ohio Turnpike Comn., 139 E. Gay St., Columbus, Zone 15,

J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, N. C. CA $8,999,854, Sect. 31, three single bridges, three twin bridges, three box culverts for drainage, grading, drainage structures, paving approx. 3.7 mi. from point approx. 3,900 ft. east of Thomas Rd. exten. eastwardly to point approx. 916 ft. east of State Rte. 299 the interchange with State Rte. 250, Erie Co.; Sect. 32, two single bridges, two twin bridges, two box culverts for drainage, grading structures, paving, approx.

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4.1 mi. from point approx. 4,321 ft. west of Patter Tract Rd. exten. eastwardly to point approx. 3,90( ft. east of Thomas Rd., Sect. 33, two single bridges three twin bridges and four box culverts for drainage grading, drainage structures, paving approx. 3.1 mi from point approx. 465 ft. west of Billings Rd. exten eastwardly to point approx. 4,321 ft. west of Patter Tract Rd., Erie Co. Bids Sept. 29. CD 10/14, under LB.

▲ OHIO—Ohio Turnpike Comn., 139 E. Gay St., Columbus, Zone 13,
Harrison Constr. Co., 1101 Western Ave., Pittsburgh, Pa., CA $5,479,481, Constr. C-7, three rein.-con. box culverts, 1 single bridge, 5 twin bridges (each twin bridge consisting of two separate but nearly identical and parallel structures), all bridges are steel beam bridges of from one to five spans each supported on rein.-con. abutments and bents, the abutments of all bridges to be on cast-in-place rein.-con. piles, bents of two bridges to be on cast-in-place rein.-con. piles and bents of three bridges to be on spread footings, incl. grading, drainage structures, paving approx. 3.9 mi. in Constr. Sect. 7 of Ohio Turnpike Proj. No. 1, from point approx. 110 ft. east of the Ravenna-Warren rd. at Turnpike Centerline Station 215 plus 00 and extending eastwardly to point approx. 1,140 ft. west of Lintz-Town Line Rd. at Turnpike Centerline Station 424 plus 30, constr. engineer's office bldg. and facilities on or near site of the work, Trumbull Co.; Contr. C-6, five rein.-con. box culverts, two single steel beam bridges of from four to five spans each supported on rein.-con. abutments and bents, the abutments of these bridges to be on cast-in-place rein.-con. piles, bents of these bridges to be on spread footings, incl. grading, drainage structures and paving approx. 2.9 mi. in Contr. Sect. 6 of Ohio Turnpike Proj. No. 1, from point approx. 1,140 ft. west of Lintz-Town Line Rd. at Turnpike in Trumbull Co. Centerline Station 424 plus 30 and extending eastwardly to point approx. 1,480 ft. west of intersection of Gladstone Rd. and St. Rt. 45 at Turnpike Centerline Station 14 plus 00; in Mahoning Co., Trumbull and Mahoning Counties;
J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, N. C. CA $5,348,405, Contr. C-28, five rein.-con. box culverts one single bridge, three twin bridges, all bridges are steel beam bridges of from one to four spans each supported on rein.-con. abutments and bents, the abutments of three bridges to be on steel piles, abutments of one bridge to be on rock, bents of two bridges to be on steel piles, bents of one bridge to be on spread footings, incl. grading, drainage, structures, paving approx. 3.8 mi. in Constr. Sect. 28 of Ohio Turnpike Proj. No. 1, from point approx. 1,500 ft. east of Chapin Rd. at Turnpike Centerline Station 919 plus 40.93 and extending eastwardly to point approx. 500 ft. east of Township line between Berlin and Florence Twps. at Turnpike Centerline Station 1121 plus 50, constr. engineer's office bldgs. and facilities on or near site of the work, Erie Co.; Contr. C-29, six rein.-con. box culverts and four single bridges, all bridges are steel beam bridges of four spans each supported on rein.-con. abutments and bents, abutments and bents of all bridges to be on cast-in-place rein.-con. piles, incl. grading, drainage, structures, paving approx. 3.8 mi. in Constr. Sect. 29 of Ohio Turnpike Proj. No. 1 from point approx. 300 ft. east of Huron River at Turnpike Centerline Station 720 plus 48 and extending eastwardly to point approx. 1,500 ft. east of Chapin Rd. at Turnpike Centerline Station 919 plus 40.93 and constr. engineer's office bldgs. and facilities on or near site of the work, Erie Co. Bids Oct. 8. CD 9/10.

▲ Modern Builders, Inc., 7911 Reading Rd., Cincinnati, O. Owner Builds. $25,000,000. 1,100 one-family brick, bsmnt. HOMES, Brentwood Village on Winton Rd. from Hempstead Dr. and Compton Rd., Edward Lipson, 1607 Asmann St., Cincinnati, O., archt.; $5,000,000, SHOPPING CENTER, of 24 store units, BOWLING ALLEY, COMMUNITY BLDG., parking facilities for 750 cars for Brentwood Village on Winston Rd., CINCINNATI, O. Cordes & Pressler, 4935 Paddock Rd., Cincinnati, O., archts. Ayers & Graf, 527 Linton St., Cincinnati, O., engrs. for foregoing projects. CD 10/10/52 under CA.

▲ Austin Co., 16112 Euclid Ave., Cleveland, O. CA $1,500,000. concrete block, steel, brick PLANT for printing textbooks, etc., COLUMBUS, O. Wesleyan University Press, Inc., Front and Fulton Sts., Columbus, O. CD 6/29.

▲ Hagerman Constr. Co., 403 Strauss Bldg., Fort Wayne, Ind., CA, general contract;
Industrial Piping & Eng. Co., 1340 Grant St., Fort Wayne, Ind., CA, mechanical work;
McKay Electric Co., 4405 Tacoma St., Fort Wayne, Ind., CA, electrical work Lutheran HOSPITAL addn., FORT WAYNE, IND. Lutheran Hospital, 3024 Fairfield St., Fort Wayne, Ind. Total est. $2,600,000. Bids Sept. 30. CD 9/23.

▲ ILLINOIS and MISSOURI—Village of Cahokia, William Miskell, mayor, Village Hall, Ill.,
Kansas City Bridge Co., 928 Broadway, Kansas City Mo., CA, Approx. $10,000,000. steel, concrete bridge over Mississippi River from Green St. between 4 and 5 Sts. in Cahokia, Ill., and intersection of Chippewa and Marine Sts. in St. Louis, Mo. Hunt & Patterson, 1605 Tower Grove Ave., St. Louis, engrs. Mojeski & Masters, State Street Bldg., Harrisburg, Pa., consult. engrs. CD 3/3/48.

▲ Hunzinger Constr. Co., 4577 N. 124 St., Butler, Wis., CA, $2,500,000, 2 story, 236x388 ft., Gimbles South Gate STORE, MILWAUKEE, WIS. Froedtert Enterprises, Inc., 735 N. Water St., Milwaukee, 2, Wis. CD 3/3.

▲ Edward Rose Co., 14900 Linwood St., Detroit, Mich. Owner Builds. $1,100,000. 100 brick ranch HOMES, Markese Street Sect., ALLEN PARK, MICH.

## UILDINGS

### LOW BIDS AND CONTRACTS

, **Westbrook Homes, Inc.,** 3349 Harrison Ave., Cincinnati, O. Owner Builds. $750,000. 41 brick HOMES, Nippert Dr. off Richard Ave., North College Hill; $440,000, 20 homes, Cindy Lane, east of Vogel Rd., CINCINNATI, O. Wilbur Firth, 7124 Montgomery Rd., Cincinnati, O., archt. Joseph M. Allen, 4638 Glenway St., Cincinnati, O., engr. Awarded Oct. 14.

**oss Homes, Inc.,** 7648 W. North Ave., Elmwood Park, Ill. Owner Builds, $375,000. 25 HOMES, FRANKLIN PARK, ILL. J. E. Chiaro, 12 N. 5 Ave., Maywood, Ill., archt.

**Engineering Service Corp.,** 510 N. Dearborn St., Chicago 10, Ill. Owner Builds, $3,600,000 350 HOMES, incl. water and sewer lines, near MIDLOTHIAN, ILL. B. H. Jillson, 2009 W. 102 St., Chicago, Ill., archt.

**los. J. Duffy,** 4994 Elston Ave., Chicago, Ill., CA, $557,628, elementary SCHOOL, Wolf Rd. and Diversey St., NORTH LAKE CITY, ILL. School District 93, c/o Roy School, North Lake City, Ill. Bids Oct. 6, awarded Oct. 9. CD 9/30.

▲ **Greenwood Terrace Inc.,** c/o Milton Staben, engr., 222 Market St., Waukegan, Ill. Owner Builds, $1,000,000 70 HOMES, at corner Greenwood and Lewis Aves., sewer, water lines, WAUKEGAN, ILL. D. J. Schaffner, 72 W. Washington St., Chicago, Ill., archts.

▲ **Winston-Foley-Missouri Valley Constr. Co.,** 2516 Wabash Ave., St. Paul, Minn., CA $1,500,000. PLANT addn., WAUSAU, WIS. Minnesota Mining & Mfg. Co., 900 Fauquier Ave., St. Paul, Minn. Toltz, King & Day, Inc., Pioneer Bldg., St. Paul, Minn., engr.

▲ **Consoweld, Inc.,** c/o Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis. Own Forces, $1,500,000, 250x400 ft., 50x100 ft. and 50x50 ft., brick, steel plastic surf. mtl. mfg. FACTORY, WISCONSIN RAPIDS, WIS. CD 9/18.

## WEST OF MISSISSIPPI

### BIDS ASKED—HEAVY CONSTRUCTION

▲† **Tex., Harlingen**—HOSPITAL—B.A. 11/13—U. S. Eng., Box 1229, Galveston, 100-bed hospital, Harlingen Air Force Base, Inv. No. Eng-41-243-54-3. $1,000,000. Extended date. CD 9/10.

† **Kan., Topeka**—LABORATORY—B.A. 11/18—U.S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., photographic technical laboratory, reconnaissance, Forbes Air Force Base, ENG-23-028-54-15. CD 5/19/52.

**Missouri**—TELEPHONE LINES—B.A. 11/19—Steeleville Telephone Exchange, Inc., Sam H. Hicks, pres., Steeleville, 342.36 mi. telephone lines, incl. 10.66 mi. cable, in Crawford, Dent, Iron and Washington Counties, Proj. 536A. Bids 5/5 cancelled. Drazen & Assoc., 8135 Forsyth Blvd., St. Louis, Zone 24, engrs. CD 3/23.

### BIDS ASKED—BUILDINGS

**Minn., Belle Plane**—SCHOOL—B.A. 11/18—Bd. Educ., W. J. Gatz, clk., high school. $800,000. H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt. CD 6/2.

▲ **Minn., Northfield**—SCHOOL—B.A. 11/18—Bd. Educ., K. W. Wegner, clk., 2 story grade school addn., $350,000; 2 story high school addn., $1,140,000. Plans deposit $25, Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, archts. CD 6/9.

† **N. M., Los Alamos**—LABORATORY—B.A. 12/15—U. S. Atomic Energy Comn., Procurement Sec., Los Alamos, 1 story, bsmnt., 120x140 ft. rein.-con. cryogenics laboratory, Inv. No. 291-54-1. $700,000-$900,000. Extended date. CD 9/23.

## HEAVY CONSTRUCTION

### LOW BIDS AND CONTRACTS

**MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul,

**H. Ganley,** 2336 Hampden Ave., St. Paul, Minn. CA $647,028. grav. base, plant-mixed bit. surf. 11.4 mi. between Hamel and Thomas Ave. north in Minneapolis, Hennepin Co. CD 9/30, under LB.

**Lysne Constr. Co.,** Blooming Prairie, Minn. CA $303,878. waste treatment plant, 6,100 lin. ft. interceptor sewers, GLENCOE, MINN. City, Mrs. Selma Zavoral, clk., Glencoe, Minn. Bids Oct. 8. CD 9/1.

**L. A. Brayton Co.,** Dyersburg, Tenn. CA $239,531. 124.8 mi. rural electric distr. lines in Lincoln, Pike, St. Charles and Warren Counties, Proj. 57G Lincoln, MISSOURI. Cuivre River Electric Co-operative, John W. Schaper, pres., Troy, Mo. Bids Mar. 19. CD 2/27.

**Cuivre River Electric Co-operative, Inc.,** L. G. Smith, mgr., Troy, Mo. Own Forces. Approx. $500,000. 271 mi. rural distr. lines in Lincoln, Pike and Warren Counties, MISSOURI. Drazen & Assoc., 8135 Forsyth Blvd., Clayton 24, Mo., engrs. CD 11/12.

**Centriline Corp.,** 1004 Baltimore St., Kansas City, Mo. LB $230,066. reaming out and relining with concrete 8,984 ft. water mains from Northeast Industrial Dist. Pumping Station, KANSAS CITY, MO. City, c/o Melvin P. Hatcher, water dir., City Hall, Kansas City, Mo. Jas. B. Ramsey, city water engr. CD 11/7.

**Fred Weber Contractors, Inc.,** 7929 Alabama Ave., St. Louis 11, Mo. CA $385,000. constr. 2,200 ft. exten. to present northeast-southwest runway at Lambert-St. Louis Municipal Airport, St. Louis County, ST. LOUIS, MO. City, Frank McDevitt, pres. Bd. P. Service, 304 City Hall, St. Louis 3, Mo. Awarded Oct. 13. CD 10/7.

▲† **Peter Kiewit Sons Co.,** 1024 Omaha Natl. Bank Bldg., Omaha, Neb. and **Morrison-Knudsen Co., Inc.,** 319 Broadway, Boise, Idaho, LB $11,592,904, Stage V, Garrison Dam embankment, Riverdale, Serial No. CIVENG-32-015-54-16, NORTH DAKOTA. U. S. Eng.,


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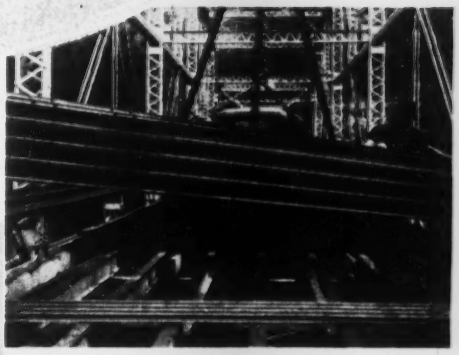

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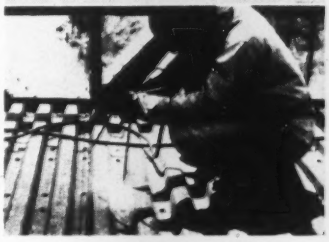

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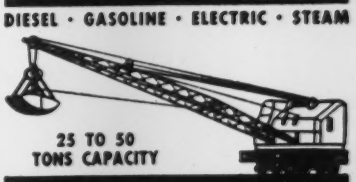

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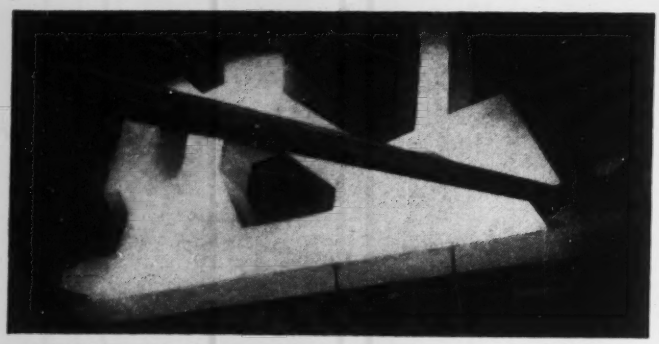

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Fort Lincoln, Box 300, Bismarck, N. D. Bids Oct. 15. CD 9/15.

† **Moffet Eng. Co.**, P.O. Box 54, Albany, Calif. LB $196,190, intake gantry crane, Gavins Point Reservoir Proj., near Yankton, Inv. 25-066-54-17, SOUTH DAKOTA. U.S. Eng., 1709 Jackson St., Omaha, Neb. Bids Oct. 13. CD 6/1/44.

SOUTH DAKOTA—State Hy. Comn., Pierre.

**John A. Carlson**, Rapid City, S. D., CA $74,144, gravel resurf. 58.171 mi. SAP's 291, 137, NRM 270B and SAP's 39B and C and surf. of SAP 256, Lyman, Mellette and Tripp Counties;

**G. H. Lindekugel & Sons**, Mitchell, S. D., CA $435,559, base course and bit. surf. 10.202 mi. Proj. FI 185 (33) (St. Work), Lyman Co.;

**H. G. Seeley**, DeSmet, S. D., CA $217,866, grading, etc. 13.027 mi. Proj. F 170 (27), Lake Co. Grand total $727,569. Bids Oct. 13. CD 10/1.

**J. C. Sanders**, City Natl. Bldg., Oklahoma City 2, Okla., LB $599,319, est. $624,110, Exchange Ave. viaduct over N. Canadian River, OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla. Hudgins-Thompson & Ball, 1100 W. Main St., Oklahoma City, Okla., engrs. Bids Oct. 13.

**J. M. White & Sons**, Box 868, South Houston, Houston, Tex. LB $146,015, Line A; LB $117,640, Line J; LB $44,061, Line K, ditch enclosure for storm drainage, Unit III, TEXAS CITY, TEX. Town, Texas City, Tex. Bids Oct. 7. CD 9/30.

† MONTANA—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland, Ore.

**McLaughlin, Inc.**, Ford Bldg., Great Falls, Mont. LB $414,798. asph. surf. 12.584 mi. Many Glacier Rd. and approach Proj. 3-A1, B1 and 13, Glacier Co. Bids Oct. 13. CD 9/30.

## BUILDINGS

LOW BIDS AND CONTRACTS

**Feeco Constr. Co.**, 510 New York Bldg., St. Paul, Minn. CA $473,875. general contract grade and high SCHOOL addns., alterations, WINNEBAGO, MINN. Bd. Educ., C. W. Robertson, clk., Winnebago, Minn. Bids Oct. 6. CD 9/10.

**Winn-Senter Constr. Co.**, Railway Exchange Bldg., Kansas City, Mo. CA $554,498. general contract Southeast High SCHOOL addns., KANSAS CITY, MO. School Bd., c/o Dr. G. Dewey Smith, asst. supt., Library Bldg., Kansas City, Mo. Bids Oct. 15. CD 10/2.

▲ **Lee P. Campau Jr.**, 5678 Hancock Ave., St. Louis 9, Mo. Own Forces. $1,000,000. two hundred and forty 2½ story brick frame RESIDENCES, 68 acre tract, NORMANDY (ST. LOUIS 21 P. O.), MO.

**L. O. Stocker Co.**, 3928 Lindell Blvd., St. Louis 8, Mo. CA Est. $400,000. 2 story, bsmnt., brick COUNTRY CLUB, ST. LOUIS COUNTY, MO. Old Warson Country Club, 9841 Old Warson Rd., Ladue 24, Mo. CD 5/29/51.

**O. E. Madsen**, 492 Sexton Bldg., Minneapolis, Minn., CA Approx. $400,000. general contract CHURCH, WILLISTON, N. D. First Lutheran Church, Rev. C. B. Nervig, Williston, N. D. Bids Sept. 24. CD 8/26.

**Manhattan Constr. Co.**, Manhattan Bldg., Muskogee, Okla. CA $450,000. 6 story auto RAMP BLDG., 6th and Boston Sts., TULSA, OKLA. First Autoramp Corp., First Natl. Bldg., Tulsa, Okla. Hugh Humphries, Tri-States Bldg., Tulsa, Okla., archt. Awarded Sept. 21.

▲ **Refinery Eng. Co.**, Wright Bldg., Tulsa, Okla., CA $3,000,000. 1 story, stone and 115 ft. tower high octane gasoline PLANT (a fluid catalytic cracking unit) with gas condensation unit and a polymerization unit, FORT WORTH, TEX. Premier Oil & Refining Co., R. P. Hargis, pres., Longview, Tex. CD 6/5.

**Overbrook Corp.**, 5308 Carrollton St., Houston, Tex. CA $333,135, Unit 4, 44 DWELLINGS; CA $329,500, portion of Unit 6, 41 frame, masonry dwellings, concrete slab fdn., in Belfort Park, HOUSTON, TEX. MacGregor Investment Co., c/o Earl A. Gregg and Overbrook Corp., 5308 Carrollton St., Houston, Tex. CD 1/4/52.

▲ **Koch Engineering Co., Inc.**, 321 W. Douglas St., Wichita, Kan., CA $2,500,000. design and construct, modernize and expansion REFINERY PLANT capacity from 4,000 bbl. of crude daily to approx. 10,000 bbl., PETTUS, TEX. Danaho Refining Co., City Natl. Bank Bldg., Houston, Tex. CD 3/16.

**F. L. Scott & Sons**, 2402 W. Kings Hy., San Antonio, Tex. LB $576,840, est. $375,000. addnl. STUDENT UNION BLDG., SCIENCE or ARTS BLDG., SAN ANTONIO, TEX. Union Junior College, San Pedro Ave., San Antonio, Tex. Bids Oct. 14. CD 9/28.

▲ **H. B. Zachry Co., Constr. Div.**, Box 2570, San Antonio, Tex., CA $3,000,000, financing, planning and constructing 500-car or more capacity underground PARKING GARAGE, Travis Park, SAN ANTONIO, TEX. City, Ralph Winton, mgr., City Hall, San Antonio, Tex. Bids Oct. 13. CD 10/15, under LB.

▲ **Ebasco Service, Inc.**, Platte River Dr., Denver, Colo., and 2 Rector St., New York, N. Y., CA, $17,000,000 design and construct 96x220 ft., 110 ft. high brick, steel Arapahoe Power PLANT addn., DENVER, COLO. Public Service Co. of Colorado, 15 and Champa Sts., Denver, Colo. CD 3/3/52.

## FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† Washington—B.A. 11/12—Bureau Reclamation, Dpt. Interior, Field Office "A" Ephrata, earthwork, pipe lines and structures Area P-4 (Block 1-3) laterals Potholes East Canal Laterals Columbia Basin Proj., Franklin Co. Spec. DC 4001.

▲† Oregon—B.A. 11/19—U. S. Eng., Pittock Block, Portland, grade, drain 8.7 mi. double track Union

Pacific R.R. and 7.1 mi. U.S. Hy. 30, The Dalles Dam site. Wasco Co., Civeng-35-026-54-45. $3,000,000.

† Oregon—B.A. 11/25—U. S. Eng., Pittock Block, Portland, 100-ton gantry crane, The Dalles Dam, Wasco Co., Civeng-35-026-54-43.

BIDS ASKED—BUILDINGS

▲ Utah, Provo—MEDICAL and SURGICAL—B.A. 11/12—State Bldg. Bd., State Capitol, Salt Lake City, 63-bed T-shaped medical and surgical bldg. at State Hospital. $1,315,000. Paul S. Hodgson, Kiesel Bldg., Ogden, archt. James A. Wade, constr. supt. CD 10/22.

▲ Calif., Los Angeles—HOUSING—B.A. 11/24—Housing Auth. of City of Los Angeles, 1401 E. First St., low-rent housing consisting of 140 dwelling units, known as Pueblo del Rio Extension, Part 2-140 Unit Increment in 53 St., 55 St. and Long Beach Ave. area. Plans deposit $100. CD 9/18/50.

SOON LETS CONTRACT—BUILDINGS

Wash., Seattle—SHIPPING WAREHOUSE—Sick's Seattle Brewing & Malting Co., 3101 Airport Way, soon lets contract 26,000 sq. ft., rein.-con. shipping warehouse on piling foundation. $500,000. Naramore, Bain, Brady & Johanson, 904 7 Ave., archts. CD 10/7.

## HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Intermountain Co., 1322 Grove St., Boise, Idaho, LB, $199,840, treatment plant, GARDEN CITY, IDAHO. Village, Village Hall, Garden City, Idaho. R. J. Briggs & Assocs., 619 Grove St., Idaho, engrs.

† Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., CA $626,475, two 18,000 h.p. hydraulic turbines, The Dalles Dam, Wasco Co., Civeng-35-026-54-10, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Sept. 10, awarded Oct. 12. CD 9/16.

† Pacific Dredging Co., 14409 Paramount St., Paramount, Calif., LB $129,559, dredge channel in Coos Bay and Isthmus slough, Coos Co., Civeng-35-026-54-40, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Oct. 13. CD 10/14, under LB.

† Coates Electric Mfg. Co., 3419 11th St., S.W., Seattle, Wash. and Marine & Industrial Supply, Inc., Pier 50, Seattle, Wash., LB $771,531, install equipment, complete power house, Lookout Point Dam, Lane Co., Civeng-36-026-54-29, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Oct. 13. CD 9/2.

P. S. Lord, 4507 S. E. Milwaukee St., Portland, Ore., LB $748,148, 103,761 ft. 6- to 48-in. storm and sanitary sewers, Multnomah Blvd., PORTLAND, ORE. City, City Hall, Portland, Ore. Bids Oct. 14. CD 10/1.

▲ Metropolitan Water District of Southern California, 306 W. 3 St., Los Angeles, Calif., rejected bids Sept. 24, 5 steel plate pump delivery lines on Colorado River Aqueduct, San Bernardino and Riverside Counties, LOS ANGELES, CALIF. LB, $3,149,430. CD 9/30, under LB.

Chas. J. Dorfman, 124 N. La Brea Ave., Los Angeles, Calif., LB, $899,441, 28 mi. sanitary sewer lines MIDWAY CITY, CALIF. Midway City Sanitary Dist., 14842 Monroe St., Midway City, Calif. Bids Oct. 6. CD 10/7, under LB.

## BUILDINGS

LOW BIDS AND CONTRACTS

▲ Riley Stoker Corp., Cornwell Heights, Pa., CA, $3,115,917, furnishing, erecting steam BOILER UNIT No. 4 for Valley Steam Plant, Sun Valley, LOS ANGELES, CALIF. Los Angeles Dpt. Water & Power, 207 S. Broadway, Los Angeles, Calif. Bids Aug. 24, awarded Oct. 13. CD 7/17.

▲ Clarence R. Frantz, 1320 N. San Fernando Blvd., Burbank, Calif., CA, $1,053,700, 60 stucco DWELLINGS, Columbus Ave., Blackhawk St., Memory Park, SAN FERNANDO, CALIF. Molouf-Frantz Co., 1320 N. San Fernando Blvd., Burbank, Calif. CD 6/9.

# CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Montreal—B.A. 11/17—Municipality, City Hall, tributary sewer, Curotte, Papineau Third Second. Plans deposit $200. H. A. Gibeau, City Hall, city engr. CD 6/8/51.

BIDS ASKED—BUILDINGS

▲ Ont., Brantford—HOSPITAL—B.A. 11/5—Sisters of St. Joseph, St. Joseph's Convent, Hamilton, Ont., Hamilton, 5 story, 150-bed hospital, Park Rd. $1,500,000-$2,000,000. Edgar A. Cross, 991 Bay St., Toronto, engr. W. L. Somerville, McMurrich & Oxley, 1104 Bay St., Toronto, archts. CD 5/4.

▲ Ont., Toronto—SCHOOL, etc.—B.A. 11/6—Collegiate Institute Bd., North York Twp., 640 Lawrence Cres., Toronto, 2 story, 64x300 ft. school, and 150x260 ft. gymnasium, classrooms and shoprooms. $1,000,000. Plans deposit $100. Allward & Gouinlock, 57 Bloor St. W., archts. CD 12/15/43.

▲ Ont., Windsor—PLANT—B.A. 11/27—Chrysler Corp. of Canada Ltd., 2405 Drouillard Rd., part 2 story, 120x2060 ft. plant addn., incl. 1 story, 360x300 ft. office section $17,000,000. W. R. Souter & Assocs., 36 James St. S., Hamilton, archts. Norman Wagner, 42 James St. N., Hamilton, engr. CD 2/19.

## BUILDINGS

LOW BIDS AND CONTRACTS

▲ Bennett & White Constr. Co., Ltd., 660 Howe St., Vancouver, B. C., CA $1,790,404, LABORATORY group stage two 14 bldgs., 1 story each, cafeteria, administration bldg., etc. at Rocky Point, VANCOU-


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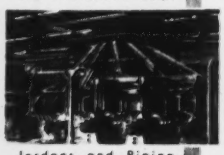

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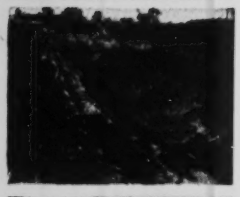
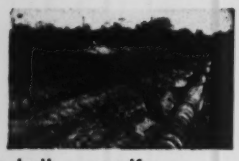


BUILDINGS

SEWERAGE



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VER, B. C. Defence Constr. Ltd., 360 Homer St., Vancouver, B. C.

▲ **Bennett-Pratt Ltd.**, 5 Maple Leaf Dr, Weston, Ont., LB, $1,327,114, 1 story, 110x310 ft., PURE FOOD building addn., alterations at exhibition grounds, TORONTO, ONT. City, City Hall, Toronto, Ont. Bids Oct. 13. CD 9/23.

**Milne & Nicholls Ltd.**, 57 Bloor St. W., Toronto, Ont., CA, $986,217, two apartment blocks in Regent Park HOUSING DEVELOPMENT, TORONTO, ONT. Housing Auth. of City of Toronto, City Hall, Toronto, Ont. Bids Oct. 8, awarded Oct. 9. CD 9/10.

**Evan S. Martin Constr. Ltd.**, 16 Saulter St., Toronto, Ont., CA, $300,000, 4 story, bsmnt., L-shaped, 55x91 ft., brick, steel RESIDENCE, lounges and cafeteria in bsmnt., TORONTO, ONT. Order of the Sisters of St. Joseph, 29 Queen's Park, Toronto, Ont. Gordon S. Adamson, 906 Yonge St., Toronto, Ont., archt.

▲ **Louis Fecteau**, 104 St. John St., Quebec City, Que., CA, $1,200,000, 200-bed HOSPITAL, BAIE COMEAU, QUE. Reverend Religieuses Hospitalieres, Haute Rive, Que. Leonce Desgagne, 369 Racine St., Chicoutimi, Que, archt.

▲ **J. W. Flamand Ltd.**, 46 Aime St., Jonquiere, Que., CA, $1,000,000, HOSPITAL for Kenogami-Jonquier, Arvida District, JONQUIER, QUE. Ministry of Health, Province of Quebec, Quebec City, Que. CD 11/20/52, under Que., Kenogami.

▲ **Canadian Kellogg Co. Ltd.**, 194 Bloor St. W., Toronto, Ont., and **Lummus Co.**, 385 Madison Ave., New York, N. Y., U.S.A., CA $20,000,000, design and construct 20,000 cap. bbl. per day REFINERY incl. catalytic cracking and polymerization, distillation plant, etc., MONTREAL EAST, QUE. Canadian Petrofina Ltd., 1015 Beaver Hall Hill, Montreal, Que. CD 10/9.

## ALASKA

BIDS ASKED—BUILDINGS

▲† **Alaska, Fairbanks**—HIGH SCHOOL—B.A. 11/30—Alaska P. Wks., Dpt. Interior, 123 Third St., Juneau, 2 story, 75,000 sq. ft. rein.-con. high school. $2,385,600. Plans deposit $50. Extended date. CD 9/17.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **S. Macri & Sons**, Anchorage, Alaska, LB $2,642,090, est. $3,261,454, road, street and sidewalk paving and storm drainage, Elmendorf Air Force Base, Inv. 54-6, ALASKA. U.S. Eng., Arcade Bldg., Seattle 1, Wash. Bids Oct. 13. CD 10/5.

▲† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho, CA $2,165,532. bulk liquid fuel storage facilities and aircraft refueling sys., Ladd Air Force Base, Inv. 54-9, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Oct. 1. CD 10/7, under LB.

## LATIN AMERICA

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Gremio Unido de Alijadores**, Direcion Conocido, Tampico, Mexico. CA $1,380,000. ore wharf, TAMPICO, MEXICO, Sria. de la Marine (Navy Dpt.), Mexico City, Mexico. Awarded Oct. 15.

### BUILDINGS

LOW BIDS AND CONTRACTS

**Kunhardt y Capilla**, Mexico City, Mexico, CA $650,000. 12 story bank annex, private OFFICE bldg., MEXICO CITY, MEXICO, Banco de Comercio, S. A., V. Carranza, 42, Mexico City, Mexico. CD 8/15/50.

## Proposed Projects

## WATER SUPPLY

▲ **Colo., Colorado Springs**—City, City Hall, constr. Montgomery Dam and Reservoir. $2,500,000. CD 10/9/51.

† **Ill., Lemont**—Atomic Energy Comn., P. O. Box 59, water treatment plant, storage bldg., sludge slurry tank near here, $350,000. D. C. Casey, Bldg. 2, Bailey Rd. Entrance, c/o owner, engr. CD 11/17/43, under Public Buildings.

**Ia., Newton**—City, c/o Don Caldwell, water dpt. mgr., expansions to city water sys., incl. new 20 in. pipe line from Metz well field, standby emug. pumping equip., 2 new wells, etc. $450,000. John A. Burriss Assoc., 202 Masonic Temple Bldg., Des Moines, consult. engrs.

▲ **Mo., Kansas City**—City, c/o Melvin P. Hatcher, dir. Water Dpt., water pumping station to replace Turkey Creek, 23 Terrace-25 and Allen-Mercier Sts., $4,425,000, Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., consult. engr. CD 11/7.

## SEWERS, WASTE DISPOSAL

**Ky., Princeton**—City, sewer exten. and sewage treatment. $265,000. Howard E. Bell, 553 Limestone St., Lexington, consult. engr.

▲ **Wis., Madison**—City, City Hall, sewage sys. in Sherman Park and Westport Areas, $1,000,000. Mead & Hunt, Inc., 550 State St., consult. engr. J. G. Thompson, c/o owner, engr.

Wis., Menasha—City, City Hall, enlarging incinerator and sewage treatment plant, $500,000. M. J. Noth, c/o owner, engr.

## BRIDGES

SOUTH CAROLINA—Hilton Head Toll Bridge Auth., Bluffton,
Beaufort Co.—bridge across to Hilton Head Island. Approx. $500,000. The McPherson Co., P. O. Box 2366, Greenville, consult. engr. CD 6/30.

▲ Ont., Toronto—City, City Hall, Humber River Bridge for one-way eastbound traffic into the city from western terminus from two highways, Hy. 2 and Queen Elizabeth Way, $4,500,000. CD 1/23.

## STREETS AND ROADS

Wash., Seattle—King Co., County-City Bldg., Seattle, Zone 4, c. conc. paving 16 Ave. S.W. and Ambaum Rd., $200,000, Military Rd. from S. 188 to Highway 5, $100,000; east side Lake Sammamish, $230,000. D. L. Evans, co. engr.

## AIRPORTS

† Pa., Phila.—CATAPULT STRUCTURE—Dpt. Navy, Phila. Naval Base, Phila., Naval Air Material Center, XC-10 catapult structure alterations, $300,000. Albert C. Wood Assocs., Inc., 1411 Walnut St., consult. engr.

## LATIN AMERICA

▲ B. W. I., Jamaica—Mahoe Bay Co. Ltd., c/o George A. Poag, 925 Lincoln Bank Tower, Fort Wayne, Ind., U. S. A., plans hotel and resort cottages, apartments, shopping center, private beach club on 230-acre tract on main road between Kingston and Montego Bay. $2,000,000.

Haiti—Reynolds Mining Corp., subsidiary of Reynolds Metals Co., 3 and Grace Sts., Richmond, Va., U. S. A. plans developing bauxite deposits for aluminum, incl. road, drying and loading facilities, pier and harbor imprts., near Miragoane.

## AMERICANS ABROAD

▲† Spain—AIRBASES—Bureau Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash., 25, D. C., plans by Shaw, Metz & Dolio, 208 La Salle St., Chicago, Ill.; Frederic R. Harris, Inc., 27 Williams St., New York, N. Y., Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., and Pereira & Luckman, 7421 Beverly St., Los Angeles, Calif., archts-engrs., airbases for Air Force and Navy.

## PUBLIC BUILDINGS

Calif., Fresno—SCHOOL—Scandinavian Elementary School District, Henry Stephens, supt., Rt. 2 Box 54-X, plans by Coates & Metz, Helm Bldg., elementary school, Winery Ave. between Swift and Ashlan Sts. $538,000.

▲ Calif., Redding—SCHOOLS—Shasta Union High School District, Redding, voted $2,000,000 bonds, schools in Enterprise and Central Valley, etc. CD 8/18.

▲ Conn., Newington—SCHOOLS—Town School Bldg. Comn., Newington, plans by Carl J. Malmfeldt & Assocs., 36 Pearl St., Hartford, Elm Hill School, $380,000, masonry elementary school, North Newington, $710,000.

▲ Conn., Willimantic—SCHOOL—State, Ralph G. Macy, P. Wk. Comr., State Office Bldg., Hartford, plans by Joseph Della Valle, 153 Court St., New Haven, regional technical school, upper Birch St. west of and adjacent to Knight Field, $1,000,000. Arthur Beaulieu & Assocs., Hamden, Conn., structural engrs. Hubbard, Lawless & Blakeley, 110 Whitney Ave., New Haven, mech. engr. CD 10/16/51.

Idaho, Burley—SCHOOL—School Bd., Burley, plans by P. K. Evans and Assoc. H. G. Lash, 203 Shoshone St., Twin Falls, high school. $540,000. CD 9/23.

Mich., Carrollton—SCHOOL—Carrollton Twp. Bd. Educ., voted $600,000 bonds elementary school, Church St., Frederick E. Wiggen, 507 Weichmann Bldg., Saginaw, archt. CD 7/10.

Mich., Fremont—SCHOOL—Fremont School Dist., $575,000 bond election Nov. 3, brick, steel elementary school, and Pine St. School addn., Main St. CD 9/16.

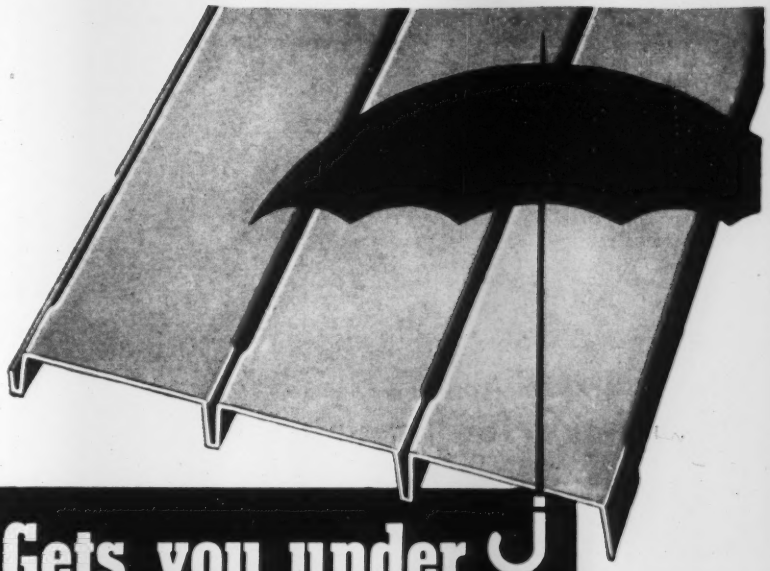
Mich., St. Johns—SCHOOL—City, Bd. Educ., brick, steel St. Johns High School addn. $500,000.

Mich., St. Joseph—SCHOOLS—City, Bd. Educ., $600,000 bond election Nov. 24, schools. Maurer & Maurer, 312 Lafayette Bldg., South Bend, Ind., archts. CD 9/15.

Minn., Annandale—SCHOOL—Bd. Educ., R. Rosseau, clk., voted $525,000 bonds Oct. 6, school, H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt. CD 9/30.

Minn., Buffalo Lake—SCHOOL—Bd. Educ., L. Shmalz, clk., plans by Pass & Rockey, Mankato, 1 and 2 story, school addn. $600,000. CD 8/19.

▲ Minn., Fairmont—SCHOOL—Bd. Educ., T. A. Fancher, clk., voted $1,556,000 bonds Oct. 6, Senior High School. Hills, Gilbertson & Hayes, 1409 Willow St., Minneapolis, archts. CD 4/15/52.

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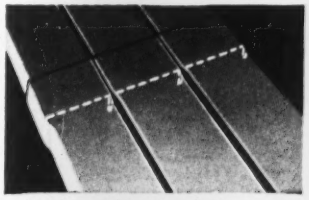

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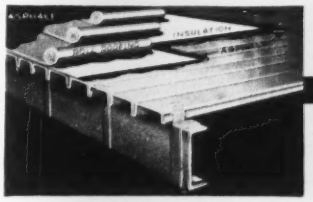

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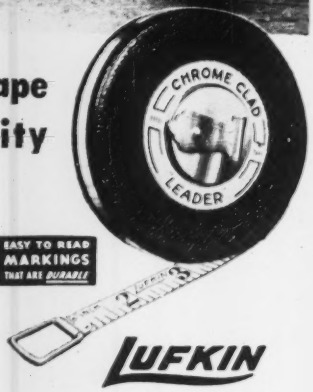


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▲ Mo., Independence—POWER PLANT—City, c/o Mayor Robt. P. Weatherford, voted $1,500,000 bonds Oct. 6, municipal electric power plant expansion of 5,000 kw, Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 9/2.

▲ Mo., Kansas City—ARMORY—City, City Hall, 414 E. 12 St., combined armory, 70.4 acres, 45-47 Sts. and Benton Blvd. $2,000,000. CD 11/10/47.

▲ Mo., Springfield—SCHOOL—Bd. Educ., 940 N. Jefferson St., voted $3,000,000 bonds Oct. 7, high school, modernization.

▲ N. J., Union—COLLEGE—New Jersey State Bd. Educ., State House, Trenton, new buildings and site for Newark State Teachers College, on 120-acre tract on southwest side of Morris Ave. west of North Ave. $3,000,000.

▲ N. Y., East Meadow—SCHOOLS—East Meadow School Dist., East Meadow, 3 new elementary schools and 2 existing elementary schools addns. $3,500,000.

▲ N. Y., New York—HOUSING—New York City Housing Auth., 63 Park Row, Zone 38, plans by Henry O. Chapman, Broadway, Zone 4, Mill Brook Houses, nine 16 story bldgs. on block bounded by Brook Ave., 137 St., St. Ann's Ave. and 135 St., also block bounded by St. Ann's Ave., 137 St., Cypress Ave. and 135 St. $10,000,000. CD 4/3.

N. C., Chapel Hill—MUSEUM—University of North Carolina, Chapel Hill, plans by H. Raymond Weeks, Snow Bldg., Durham, Ackland Museum Bldg. $800,000.

▲ N. C., Chapel Hill—INSTITUTE OF GOVT.—University of North Carolina, Chapel Hill, plans by George Watts Carr, 111 Corcoran St., Durham, Institute of Govt. Bldg. $1,000,000.

▲ Pa., Bristol—SCHOOLS—Bristol Twp. School Auth., Bristol, elementary school, Lancaster Tract, near Green Lane, $500,000; plans by A. E. Micklewright, 72 Ewing St., Trenton, N. J., Junior High School, Mill Creek Rd., $750,000.

Pa., Broomall—SCHOOL—Marple Twp. School Dist., Broomall, plans by The Ballinger Co., 121 N. Broad St., Phila., elementary school, Sproul Rd. and New Ardmore Ave. $800,000. CD 1/13/47.

▲ Pa., Langhorne—SCHOOLS—Neshaminy Joint School Bd., Langhorne, elementary school, Oakford, $350,000; plans by Haig & D'Entremont, Jenkintown, Junior High School, Old Lincoln Hy., Janney, $1,750,000. CD 4/6.

Pa., Meyersdale — HIGH SCHOOL — Meyersdale Joint School Dist., Somerset, plans by Walker Morg, 226 Church St., Somerset, 1 story brick, steel high school. $500,000.

▲ Pa., Reading—HOUSING—Reading Housing Auth., 1301 Schuylkill Ave., plans by Muhlenberg, Yerkes & Muhlenberg, Gamster Bldg., 5 and Walnut Sts., 128 dwelling units, Housing Proj. No. 15. $2,000,000.

Pa., Saxonburg—HIGH SCHOOL—South Butler Joint Area School Dist., Saxonburg, plans by W. G. Eckles, Lawrence Savings & Trust Bldg., New Castle, 1 and 2 story Junior-Senior High School. $800,000.

Tex., Andrews—SCHOOL—Andrews Independent School District, Andrews, plans by Haynes & Kirby, 1902 Dixie Dr., Houston, Junior High School, $600,000.

▲ Va., Fairfax—SCHOOLS—Fairfax County School Bd., Fairfax, plans by Robert A. Wilfgoos, 300 Montgomery St., Alexandria, 2 story masonry Groveton High School, Groveton, near Alexandria, $1,500,000; 2 story, masonry Bucknell Elementary School, near Alexandria, $350,000. CD 2/9.

† Va., Quantico—CHAPEL—P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., plans by Murphy & Locraft, 1518 19th St. N.W., Wash., D. C. chapel. $600,000.

▲ Wash., Seattle—GRAIN ELEVATORS—Port of Seattle, Bell St. Terminal, Zone 1, modernize grain elevators, $1,500,000. E. F. Carter, 835 W. Hastings St. Vancouver, B. C., Canada, and Marshall & Barr Assocs., Lloyd Bldg., Zone 1, consult. engrs.

Alaska, Anchorage—SCHOOL—School Bd., Anchorage, plans by E. B. Crittenden, Anchorage, elementary school on Government Hill. $500,000.

▲ Alaska, Anchorage — SCHOOL — Independent School District, Anchorage, plans by Manley & Mayer, Anchorage, elementary school in Airport Heights. $1,800,000. CD 12/31.

▲ Alaska, Fairbanks—POWER PLANT—City, City Hall, increasing capacity of power plant, $1,500,000; extend heating sys., $75,000. R. W. Beck & Assocs., Tower Bldg., Seattle 1, Wash., consult. engrs. CD 10/16/51.

▲ Ont., Brantford — SCHOOL — Brantford Bd. Educ., Sheridan St., plans by F. C. Bodley, 88 Nelson St., high school at Glebe Lands. $1,140,000. CD 2/9/51.

## COMMERCIAL BUILDINGS

▲ Ill., Aurora—Y.M.C.A.—Young Men's Christian Assn., 205 Fox St., plans by Bertram A. Weber, 221 N. La Salle St., Chicago, Zone 1, Y.M.C.A. Bldg. $1,350,000.

Ill., Waukegan—SCHOOL, etc—Immaculate Conception Parish, 508 Grand Ave., plans by Hertel Johnson Eipper Stopa & Culver, 105 W. Adams St., Chicago, Zone 3, 1 and 2 story, part bsmnt., steel, stone school and gymnasium, $700,000.

Ky., Paducah—DEPARTMENT STORE—Inter State Department Store, Paducah, plans by Copeland Novack & Assoc., 42 E. 51 St., New York, N. Y., repair, restore 4 story, 57x110 ft., brick, rein.-con. department store. $500,000.

Md., Baltimore—SCHOOL, etc—Our Lady of Pompei R. C. Church, Claremont and Conkling Sts., plans by B. F. Owens & Assoc., 213 N. Calvert St., 3 story, 150x195 ft., brick, stone, steel rein.-con. school, hall, rectory and convent, $650,000.

▲ Mass., Brighton—LAW SCHOOL—Boston College, 140 Commonwealth Ave., Newton, plans by Maginnis & Walsh, 125 Newbury St., Boston, 3 story, masonry

law school, St. Thomas More Hall, Commonwealth Ave., Chestnut Hill Dr. and Chestnut Hill Park, $1,250,000. CD 7/27.

▲ N. Y., Hicksville—SHOPPING CENTER—Stackler & Frank, 204 Front St., Hempstead, shopping center, 110-acre tract, west side of Broadway, between James St. and Nevada Ave. $35,000,000.

▲ N. Y., New York—APARTMENT—800 Grand Concourse Corp., c/o H. I. Feldman, archt., 415 Lexington Ave., Zone 17, apartment for 275-families, Grand Concourse and E. 158 St. $2,000,000.

▲ Okla., Tulsa—HOSPITAL—St. John's Hospital, 1923 S. Utica St., plans by Leon B. Senter, 306 Philtower Bldg., 100-125 bed hospital addn., $2,000,000; remodeling, improv. hospital units, $750,000; educational $750,000. CD 1/8.

▲ Pa., Ardmore—SHOPPING CENTER—Harry A. Robinson, 42 S. 15 St., Phila., shopping center, Lancaster Ave. $1,000,000.

▲ Pa., Pittsburgh—APARTMENT—Reliance Contg. Co., 130 N. Hiland St., plans by M. Nirdlinger, c/o owner, 8 story 50x125 ft. brick, block, steel apartment, Bigelow Blvd. $1,000,000.

▲ Pa., Reading—HOSPITAL—St. Joseph's Hospital, 12 and Walnut Sts., plans by Muhlenberg, Yerkes & Muhlenberg, Ganster Bldg., 5 and Walnut Sts., hospital. $2,000,000.

▲ Pa., Springfield—SHOPPING CENTER—Frank J. Blair, Western Savings Fund Bldg., Phila., shopping center, $1,000,000.

Pa., West Chester—HOSPITAL—Chester County Hospital, West Chester, Pa., plans by E. William Martin, 830 West St., Wilmington, Del., hospital addns., alterations. $850,000.

▲ Tex., Houston—HOTEL, etc.—DeGeorge Estate, Ambassador Hotel, plans by Mackie & Kamrath, 2713 Ferndale St., 16 story, bsmnt. hotel, $6,000,000; 10-12 story apartment, $3,000,000. CD 10/5.

Tex., Lubbock—SHOPPING CENTER—W. B. Blankenship, Lubbock, plans by Mesa Architects & Engineers, engrs. and archts., 1902 Avenue M, 1 story, 120,000 sq. ft. steel, brick exterior shopping center, concrete pier and beam fdn. $875,000.

Va., Alexandria APARTMENT UNITS—Quaker Lane Apartment Corp.,c/o Edmund W. Dreyfuss, archt., 1019 15th St. N. W. Wash., D. C., 3 story, bsmnt., 96-apartment units, masonry constr. $500,000.

Ont., Hamilton—OFFICE—Bay Park Investments Ltd., c/o H. G. Long, Consumers Lumber Co., 400 Parkdale North, plans by Wm. R. Souter & Assocs., 36 James St. S., 11 story office bldg., Main St. W. and Park Ave. $500,000.

▲ Ont., Ottawa—STORES—Principal Investments Ltd., 67 Richmond St. W., Toronto, 2 stores, Carling Ave. to serve new housing development and others, $1,500,000.

▲ Ont., Ottawa—OFFICE—Wittington Investments, Ltd., Garfield Weston, pres., 140 Wellington St., plans by Abra & Balharrie, 55 Metcalfe St., 10 story, bsmnt., steel, block granite, bronze, limestone, terra cotta, etc. office, Wellington St., to be called the "Weston Bldg." Approx. $1,000,000.

## INDUSTRIAL BUILDINGS

Conn., Bloomfield—PLANT—Kaman Aircraft Corp., Bloomfield, plans by Thompson & Barnum, 250 Park Ave., New York N. Y., 80x170 ft. flight test hangar plant addn. $500,000.

▲ Ill., Waukegan—WAREHOUSE, etc.—Johns-Manville Corp., 22 E. 40 St., New York 16, N. Y., warehouse and plant to mfg. friction materials. $3,000,000.

▲ N. J., Yardville—MILL—Hightstown Rug Co., Hightstown, Pa., velvet mill, $2,250,000.

▲ O., Columbus—FACTORY—Simmons Co., 1870 Merchandise Mart Plaza, Chicago, Ill., coil spring factory and assembly plant for Simmons furniture, Kinnear Rd. $1,200,000.

Ore., Portland—FACTORY, etc.—White Motor Co., E. 79 St. and Wallace Ave., Cleveland, O., 1 story, 50,000 sq. ft. factory and service center, $700,000.

▲ B. C., Vancouver—WAREHOUSE, etc.—Canadian General Electric Co. Ltd., Peterborough, Ont., warehouse and office development, Pacific Headquarters, $1,000,000.

Man., Winnipeg—WAREHOUSE, etc.—Scott Fruit Co., 453 Ross Ave., plans by Rule, Wynn & Rule, 513 8 Ave. W., Calgary, Alta., 1 and 2 story, steel frame, 60,000 sq. ft. warehouse and office, $502,000.

## UNCLASSIFIED

Mass., Salisbury—BEACH DEVELOPMENT—State, Dpt. P. Wks., 100 Nashua St., Boston, plans by Coletti Bros., 687 Boylston St., Boston, Salisbury Beach development, pavilion, bathhouse, indoor and outdoor dining room, etc. $300,000. CD 5/28.

Mich., Lansing—RADIO-TELEVISION CENTER—WJIM Inc., Harold S. Gross, pres., 1501 Bank of Lansing Bldg., plans by Laitala & Nuechterlein, 600 Hollister Bldg., radio-television center 1,000 ft. tower new 1,000 watt transmitter, 2 story, 130x130 ft., bldg., 22 ft. high, 40x50 ft. television studio, 40x50 ft. roof terrace, East Saganaw and Howard Sts. $750,000, Frazer & Raftery, Geneva, consult. engrs. CD 12/23.

▲ Tenn., Chattanooga—FREIGHT YARD—Nashville, Chattanooga & St. Louis Ry., J. C. Aker, ch. engr., 930 Broadway, Nashville, Zone 3, freight yard. $3,000,000.


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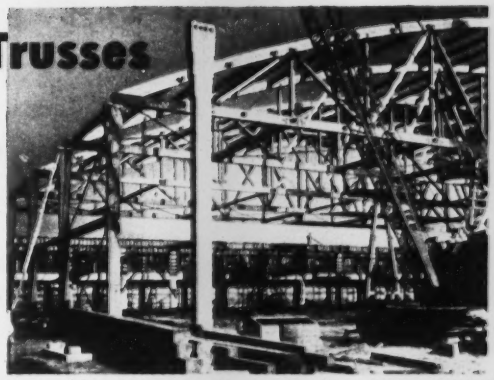

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# UNIT PRICES

## Cantilever bridge, Oregon

A $2,863,221 low-alloy and carbon-steel, cantilever bridge spanning the Columbia River about 1.5 miles east of Umatilla, Oregon will be constructed under the terms of two contracts awarded by Umatilla county.

The $676,308 substructure contract was awarded to a combination of Cascade Construction, Inc. and Austin Construction Co., Seattle, the second low bidders.

General Construction Co., Portland, Oregon, the low bidder, was eliminated because of a provision in the bid that they be awarded both contracts or none at all.

The contract calls for construction of 25 reinforced-concrete piers, bents, and abutments and a 2.1-mile approach.

The $2,186,913 superstructure contract went to the American Bridge Division of U. S. Steel, lowest of eight bidders.

U. S. Steel's bid was only 12% below the high by J. H. Pomeroy, who also submitted the high bid on the substructure.

Specifications include two 600-ft main spans; two 300-ft anchor arms; and one 120-ft central span. Fourteen-hundred and fifty linear feet of low-alloy, lightweight, concrete deck will be constructed consisting of steel-plate, girder, deck-spans and 94 lin ft of carbon steel rolled-beam, deck-spans. All spans will be two-lane.

The project was started October 1, 1953 and is scheduled for completion by April, 1955.

Tudor Engineering Co., San Francisco, California, are the engineers.

Bidders include:

### Substructure

| | | |
|---|---|---|
| 1 | General Const. Co., Portland, Oregon | $658,813* |
| 2C | Cascade Constr., Inc. & Austin Const. Co., Seattle, Washington | 676,308 |
| 8 | J. H. Pomeroy & Co., Inc., San Francisco | 11,092,975 |

| Bids: 8-25-53 Item | Unit | Quantity | Unit Prices 1 C | 2 |
|---|---|---|---|---|
| Clearing & grubbing | ls | 1 | $3,000 | $3,000 |
| Embankment in place (including haul) | cy | 186,000 | 0.40 | 0.35 |
| Uncl culvert exc | cy | 40 | 3.00 | 3.00 |
| Riprap | cy | 3,870 | 4.00 | 5.00 |
| Finish roadbed & slopes | mi | 2.1 | 500.00 | 650.00 |
| Sprinkling | mgal | 1,500 | 1.00 | 2.50 |
| Rock base course | t | 14,800 | 1.60 | 1.75 |
| Rock surface course | t | 7,350 | 1.75 | 2.25 |
| Preparation of base | mi | 2.1 | 200.00 | 500.00 |
| F & P aggregates | t | 3,260 | 4.00 | 4.40 |
| F&P bit cmt MC-3 | t | 50 | 48.00 | 47.50 |
| F&P bit cmt 121-200 pen | t | 182 | 44.00 | 46.50 |
| F&P bit cmt RC-3 | t | 34 | 55.00 | 47.50 |
| Raised asph conc markers | lf | 250 | 2.50 | 3.00 |
| Plain conc culv pipe, 36" diameter | lf | 73 | 8.50 | 8.50 |
| 24" | lf | 73 | 5.00 | 5.00 |
| 18" | lf | 100 | 4.00 | 3.50 |
| Beam guard rail | lf | 5,770 | 4.00 | 3.00 |
| RC sight post in place | ea | 55 | 10.00 | 10.00 |
| RC rdwy marker in place | ea | 54 | 8.00 | 10.00 |

| Bids: 8-25-53 Items | Unit | Quantity | Unit Prices 1 C | 2 |
|---|---|---|---|---|
| Steel piles, 12" | lf | 750 | 5.50 | 5.50 |
| 10" | lf | 250 | 4.50 | 4.25 |
| Driving steel piles | ea | 30 | 110.00 | 90.00 |
| Shoring, cribbing | ls | 1 | 55,000 | 98,000 |
| Str exc below elev. 250 | cy | 820 | 22.00 | 30.00 |
| above elev. 250 | cy | 2,550 | 3.00 | 7.00 |
| Class "A" concrete | cy | 5,870 | 50.00 | 42.00 |
| Class "A" tremie conc | cy | 1,350 | 29.00 | 27.50 |
| Met reinforcement | lb | 627,000 | 0.10 | 0.11 |

### Superstructure

| | | |
|---|---|---|
| 1C | American Bridge Div., U. S. Steel, Portland, Oregon | $2,186,913 |
| 2 | Bethlehem Pacific Coast Stl. Co., Seattle | 2,240,235 |
| 8 | J. H. Pomeroy & Co., Inc., San Francisco | 2,471,820 |

| Items | Unit | Quantity | 1 C | 2 |
|---|---|---|---|---|
| Struct stl, low alloy | lb | 3,586,000 | $0.2503 | $0.2725 |
| Struct carbon steel | lb | 3,888,000 | 0.2451 | 0.2462 |
| Hand rail, deck spans | lf | 3,127 | 13.50 | 10.38 |
| Maint travelers | ea | 3 | 10,645 | 9,190 |
| Lightweight conc | cy | 2,820 | 72.60 | 67.65 |
| Reinf steel | lb | 483,000 | 0.113 | 0.1025 |
| Conduit hangers | ea | 360 | 2.35 | 2.05 |
| Portland cement | sack | 300 | 1.60 | 1.40 |
| Finishing pier caps | ls | 1 | 8,208 | 4,358 |

* All or nothing bid

## Highway construction, Texas

Approximately four and one-half miles will be graded, surfaced, and equipped with structures under the terms of a $112,033 contract, awarded by the Texas Highway Commission to Henry Stafford, Lubbock, Texas. Benjamin C. Sides, Andrews, Texas, is the engineer.

The eight bidders on the job were separated by 26% with an average spread of about 4% between each of them.

Work consists of constructing a 100-ft right-of-way with a 30-ft crown. The road will be finished with a 22-ft x 7 in. base, a 20-ft prime coat, and two surface-course treatments.

Wage rates on the 160-day project are: skilled labor, $1.50 per hr; semi-skilled labor, $1.05 per hr; and common labor, $1.00 per hr.

Bidders include:

| | | |
|---|---|---|
| 1C | Henry Stafford, Lubbock, Texas | $112,033 |
| 2 | Ernes Loyd, Fort Worth, Texas | 118,636 |
| 8 | W. O. Pelphrey, Fort Worth, Texas | 150,917 |

| Bids: 8-18-53 Item | Unit | Quantity | Unit Prices 1 C | 2 |
|---|---|---|---|---|
| Uncl struct exc (culv) | cy | 365 | $2.50 | $2.50 |
| Road grader work | sta | 405.9 | 12.00 | 10.00 |
| Stripping | cy | 4,250 | 0.10 | 0.15 |
| Scraper work | hr | 76 | 12.50 | 10.00 |
| Bulldozer work | hr | 47 | 10.00 | 10.00 |
| Machine grading | sta | 242.87 | 20.00 | 44.00 |
| Sprinkling | mgal | 5,701 | 1.75 | 1.50 |
| Rolling | hr | 445 | 2.50 | 5.00 |
| Rolling | hr | 243 | 4.50 | 5.50 |
| Rolling | hr | 1,644 | 2.00 | 3.00 |
| Foundation course | cy | 44,879 | 0.72 | 0.65 |
| Additional ¼ mi haul | cy | 678,934 | 0.175 | 0.018 |
| Asph mat M(C-1) | gal | 29,870 | 0.13 | 0.14 |
| Asphalt (CA-175) | gal | 5,380 | 0.13 | 0.135 |
| Aggr (type A, grade 5) | cy | 244 | 5.40 | 5.60 |
| Asph (M-C-3) | gal | 44,806 | 0.13 | 0.14 |
| Asph (CA-175) | gal | 29,870 | 0.13 | 0.135 |
| Aggr (type A, grades 3 & 5) | cy | 3,020 | 5.40 | 5.60 |
| Corr galv met pipe, arch 3 | lf | 480 | 5.50 | 4.60 |
| 48" corr galv met pipe | lf | 120 | 12.00 | 11.60 |
| Remove old struct (pipe culvert) | ea | 5 | 20.00 | 20.00 |
| Row markers (type 1) | ea | 92 | 5.00 | 4.00 |
| Cmt stabilized riprap | cy | 28.8 | 20.00 | 30.00 |
| Foundation course (stock piled) | cy | 5,000 | 0.55 | 0.45 |

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# Bids—Low Bids—Contracts—Second Section

## NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
November 3, 7 Massachusetts

▲† **Mass., Chicopee Falls**—LABORATORY—B.A. On Or About 12/8—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, reconnaissance technical laboratory, Westover Air Force Base, ENG-19-016-54-44. Under $1,200,000. Plans deposit $25. CD 1/7.

BIDS ASKED—BUILDINGS

**Conn., New Haven**—SCHOOL—B.A. 11/9—City Bd. Educ., 169 Church St., Betsey Ross School, Quinnipiac Ave. Section. $700,000. Wescott & Mapes, Inc., 109 Church St., archt. CD 8/6.

### BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Gilbane Building Co.**, 90 Calverly St., Providence, R. I., CA, **$1,179,000**, est. $1,000,000. Proj. B-A-D-170, MEN'S DORMITORIES, University of Connecticut, STORRS, CONN. State P. Wks. Comr., State Office Bldg., Hartford, Conn. Bids Sept. 2. CD 9/10, under LB.

## MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
November 3 Maryland — November 4 Delaware
November 5, 10 New Jersey
STREETS AND ROADS
November 3 Maryland — November 4 Delaware
November 5, 9 New Jersey

BIDS ASKED—BUILDINGS

**Pa., Pittsburgh**—DORMITORY, etc.—B.A. 11/3—St. Francis Academy, McRoberts Rd., Castle Shannon, Pittsburgh, 124x142 ft. brick, block dormitory addn., 39x72 ft. chapel addn. $500,000. A. Pyzdrowski, 3410 Melwood St., archt. CD 7/15.

▲ **N. J., Montclair**—LIBRARY—B.A. 11/5—Montclair Free Public Library, Montclair, library, $1,000,000.

**N. Y., Lloyd Harbor**—SCHOOL—B.A. 11/5—Bd. Educ., Union Free School Dist. 2, Lloyd Harbor (Huntington P.O.), school addn., alterations, $650,000. CD 5/21.

**Md., Sabillasville**—DINING ROOM, etc.—B.A. 11/12—State of Md., Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, dining room and kitchen service wing. $300,000. Plans deposit $25. Buckler, Fenhagen, Meyer & Ayers, Federal Land Bank Bldg., Baltimore, Zone 18, archts. CD 7/24.

**N. Y., Queens Village**—HIGH SCHOOL MODERNIZATION—B.A. 11/17—Director Bureau Constr., 49 Flatbush Ave. exten., Brooklyn Zone 1, general constr. (modernization) Junior High School 109, 213, St. and 92 Ave., Queens Boro. Plans deposit $20.

**N. Y., Brooklyn**—HIGH SCHOOL—B.A. 11/18—Director Bureau Constr, 49 Flatbush Ave. exten., Zone 1, general constr. Junior High School 117, Willoughby Ave. between Kent and Franklin Aves. Plans deposit $35. CD 5/28.

† **N. Y., Hempstead**—ARMORY—B.A. About 1/12—U. S. Eng., 80 Lafayette St., New York, Zone 13, 400-man ORC armory. $100,000-$500,000. Embury & Lucas, 150 E. 61 St., New York, Zone 21, archts.

**Pa., Pittsburgh**—PLANT—Bids Asked—Pittsburgh Gear Co., 27 and Smallman Sts., heat treatment plant imprvs., remodeling present plant, Neville Island. $700,000.

SOON LETS CONTRACT—BUILDINGS

**Pa., Pittsburgh**—WAREHOUSE, etc.—Edwin L. Wiegand Co., 7500 Thomas Blvd., soon lets contract, 5 story, rein.-con. warehouse and light mfg. bldg. $500,000. Prack & Prack, 509 Martin Bldg., 119 Federal St., archts.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

**Shannahan Constr.**, P.O. Box 21, Ellenville, N. Y., LB $491,500, Contr. 436, clearing, grubbing middle portion of Pepacton Reservoir, in preparation for storage of water, work will comprise clearing of approx. 1,750 acres, grubbing approx. 550 acres, and required excavation and removal of excremtitious material of Pepacton Reservoir in Towns of Andes and Middletown, Delaware Co., NEW YORK, N. Y. Bd. Water Supply, 120 Wall St., New York 5, N. Y. Bids Oct. 20. CD 9/28.

† **U. S. Eng.**, 80 Lafayete St., New York 13, N. Y., rejected bids Oct. 13, navigational aids bldg., Suffolk County Air Force Base, WESTHAMPTON, N. Y. CD 8/27.

**NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,

**Pangia Construction Co.**, Atco, N. J., LB, **$442,742**. wid'n., resurf. 5.584 mi. U.S. Route 30 from Clarks' Branch to Route 73 Interchange, incl. drainage imprvs. at Watsontown Rd., Camden Co. Bids Oct. 20. CD 9/30.

▲ **NEW JERSEY and PENNSYLVANIA**—Delaware River Bridge Port Auth., Administration Bldg., Bridge Plaza, Camden, N. J.

**Bethlehem Steel Co.**, Suburban Station, Phila., Pa., CA, **$6,610,070**, est. $5,500,000, Contract 4, towers and cable anchorage steelwork for suspension bridge over Delaware River connecting Packer Ave. in Philadelphia, Pa. and Gloucester City, N. J. Bids Oct. 15, awarded Oct. 21. CD 10/16, under LB.

▲† **Kaminer Constr. Co., Inc.**, 303 S. Hudson St., Greenville, S. C., LB, **$912,498**, Schedule A;

**Charles H. Tompkins Co.**, 907 16 St. N.W., Wash., D. C., LB, **$1,092,684**, Schedule B; **$1,044,708**, Schedule B, with alternates;

**Frederick Raff Co.**, 271 Sheldon St., Hartford, Conn., LB, **$2,377,710**, Schedule A plus B; **$2,333,618** Schedule A plus B, and alternates for utilities for N.S.A. Construction Project, ENG-18-020-54-8, FORT GEORGE G. MEADE, MD. U. S. Eng., 24 St. and Maryland Ave., P.O. Box 1715, Baltimore, 3, Md. Bids Oct. 15. CD 10/7.

**Frank Angelozzi Constr. Co.**, 123 S. High St., Baltimore, Md., LB, **$166,277** Contract 345-C, Dundalk Outfall Drain, Dundalk, TOWSON, MD. Comrs. Baltimore Co., Court House, Towson, Md. Bids Oct. 16. CD 10/7.

### BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Miller & Marcus**, c/o Stanley Shaftel, archt., 89-47 163 St., Jamaica, N. Y. Owner Builds. **$2,000,000**. 50 HOUSES, 30-acre tract, Genesee Trail and Tamarack Circle, HARRISON, N. Y.

▲ **Delagart Realty Corp.**, 407 E. 55 St., New York 22, N. Y. Owner Builds. **$3,490,000**. 19 story APARTMENT, 20 Sutton Pl. South, NEW YORK, N. Y. Boak & Raad, 175 Fifth Ave., New York 10, N. Y., archts. CD 7/16/52.

▲ **George A. Fuller Co.**, 597 Madison Ave., New York, N. Y. CA. Est. **$11,000,000**. 19 story OFFICE bldg., Avenue of the Americas, 48 and 49 Sts., United States Rubber Co., NEW YORK, N. Y. Rockefeller Center, Inc., 50 Rockefeller Plaza, New York, N. Y. Harrison & Abramovitz, 630 Fifth Ave., New York, N. Y., archts.

**B. C. Posner Constr. Co., Inc.**, c/o Kelly & Gruzen, archts., 80 Fifth Ave., New York 3, N. Y. Owner Builds. **$750,000**. White Plains SHOPPING CENTER, Tarrytown Rd., Central Ave. and Bronx River Parkway, WHITE PLAINS, N. Y.

▲ **Trimble Co.**, 1719 Penna. Ave., Pittsburgh, Pa., CA Approx. **$1,000,000**. 3 story, bsmnt., brick, block, steel Y.M.C.A. BLDG., CONWAY, PA. Pennsylvania R.R., J. L. Gressitt, ch. engr., Broad St. Station Bldg., 1617 Pennsylvania Blvd., Phila. 4, Pa. Hunting, Larsen & Dunnells, Century Bldg., Pittsburgh, Pa., archts. CD 12/15, under Unclassified.

**Trimble Co.**, 1719 Penna. Ave., Pittsburgh, Pa., CA **$140,000**. 1 story block TRUCK STORAGE, concrete floors, GREENSBURG, PA. Bell Telephone Co., 416 Seventh Ave., Pittsburgh, Pa. Press C. Dowler, Century Bldg., Pittsburgh, Pa., archt.

▲ **Dick Constr. Co.**, Rte. 51, Library, Pa., LB **$1,298,000**. 6 story, 80x150 ft., brick, block, stone, steel SCHOOL OF ENGINEERING and MINES, O'Hara St., PITTSBURGH, PA. University of Pittsburgh, Forbes St., Pittsburgh, Pa. Bids Oct. 14. CD 10/6.

**J. Alvin Hambaker, Inc.**, 110 S. Atherton St., State College, Pa., LB **$449,667**. alterations, addns. to Junior-Senior HIGH SCHOOL BLDG. of St. Marys-Benzinger Joint School Dist., ST. MARYS, PA. State Public School Building Auth., 25 and Market Sts., Harrisburg, Pa. Bids Oct. 15. CD 9/30.

## SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
November 6 Kentucky
STREETS AND ROADS
November 5 Virginia — November 6 Kentucky

**Ala., Robertsdale**—B.A. 11/4—Town, WW imprvs. $82,000. Donald Mills, P.O. Box 534, Selma, engr.

▲ **Ala., Mobile**—B.A. 11/10—City, City Hall, addn. to Eslava Creek Sewage Disposal Plant. $1,000,000. Plans deposit $25. J. B. Converse & Co., 106 St Joseph St., engrs. CD 5/5.

**Fla., Miami**—B.A. 11/10—Dade Co. Court House, Miami, installing control and lift equipment, Venetian Causeway rolling lift bridges. CD 11/9/44.

† **Ky., Fort Knox**—B.A. 11/20—U.S. Eng., 830 W. Broadway, Louisville, exten., rehabilitation present water facilities, incl. new well field. Plans deposit $15. Bids 10/20 cancelled. CD 10/14.

BIDS ASKED—BUILDINGS

**Ga., Decatur**—SCHOOL—B.A. 11/3—DeKalb Co. Bd. Educ., Decatur, Columbia Road School, $300,000. CD 9/22/52.

**S. C., Orangeburg**—HIGH SCHOOL—B.A. 11/3—Orangeburg Co. Bd. Educ., Orangeburg, high school, Norway. $310,000. Lyles, Bissett, Carlisle & Wolff, 1321 Bull St., Columbia, archts.

**Ga., Atlanta**—CHURCH—B.A. 11/4—Druid Hills Methodist Church, 675 Seminole Ave. N.E., church. $400,000. Extended date. Ivey & Crook, Candler Bldg., archts. CD 10/13.

N. C., Rocky Mount—HOUSING—B.A. 11/5—Rocky Mount Housing Auth., W. H. McIntyre, exec. dir., Rocky Mount, 110 dwelling units, West End Terrace, Housing Proj. No. NC 19-1. Plans deposit $25. John J. Rowland, Kinston, archt. James M. Simpson, Kinston, assoc. archt. CD 9/1.

Fla., Crestview—COURT HOUSE—B.A. 11/10—Okaloosa Co., court house. $400,000. Chas. H. McCauley, Jackson Bldg., Birmingham, Ala., archt.

▲ Va., Blacksburg—LIBRARY—B.A. 11/18—Virginia Polytechnic Institute, Blacksburg, library. $2,000,000. Plans deposit $35. Carneal & Johnston, 1000 Atlantic Life Bldg., Richmond, archts. CD 4/17.

▲ Ky., Louisville—SCHOOL—B.A. 11/22—Jefferson Co. Bd. Educ., 618 W. Jefferson St., 2 story Suda E. Butler School, Crum's Lane, Shively. $1,041,007. Plans deposit $20. Hartstein, Louis & Henry, McDowell Bldg., archts. E. R. Ronald & Assoc., 544 S. Third St., engrs. CD 10/10/52.

▲ Ga., Savannah—HOSPITAL—B.A. 11/24—Chatham County Hospital Auth., Court House, hospital. Over $4,000,000. Abreu & Robeson, 141 Walton St., N.W., Atlanta, archts. CD 5/12, under LB.

## HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Gilbert Eng. Co., Statesville, N. C., LB $122,292. Contr. 1, sewerage sys., MOUNT AIRY, N. C. Town, Mount Airy, N. C. Bids Oct. 7. CD 9/30.

Mion Constr. Co., 377 Techwood Dr., Atlanta, Ga., CA, $60,000. paving parking lot, ATLANTA, GA. Sears, Roebuck & Co., 675 Ponce De Leon Ave. N.E., Atlanta, Ga.

Giller Contg. Co., 523 Michigan Ave., Miami Beach, Fla., CA, $132,470. swimming pool in Flamingo Park, MIAMI BEACH, FLA. City, City Hall, Miami Beach, Fla. Bids Oct. 9. CD 9/30.

Soule Constr. Co., 1313 N. "O" St., Pensacola, Fla., CA, $408,265, sewage plant addn., PENSACOLA, FLA. City, City Hall, Pensacola, Fla. Bids Oct. 13.

Bush Bldg. Co., 805 8 Ave. N., Nashville, Tenn., CA, $228,690. water supply imprvs., ST. PETERSBURG, FLA. City, City Hall, St. Petersburg, Fla. Bids Oct. 14. CD 9/14.

Southern Gunite Corp., 1500 Bay St. S.E., St. Petersburg, Fla. CA $75,000. commercial swimming pool, bath house and pump house, ST. PETERSBURG, FLA. Vernon Howland, 6106 3 St., St. Petersburg, Fla.

Harbert Constr. Co. 2208 8 Ave. S., Birmingham, Ala., CA, $114,300. WW imprvs., MONTEVALLO, ALA. City, Montevallo, Ala. Bids Oct. 14. CD 10/5.

Town, Lookout Mountain, Tenn., cancelled bids to have been opened Nov. 10, swimming pool and bathhouse, LOOKOUT MOUNTAIN, TENN. Est. $75,000. CD 10/16.

## BUILDINGS

LOW BIDS AND CONTRACTS

Goode Constr. Corp., Builders Bldg., Charlotte, N. C. CA $340,000. 5 story, rein-con. PARKING GARAGE, ROANOKE, VA. E. Carbaugh, Jr., c/o Roanoke Chamber of Commerce, 108 Kirk Ave. S.W., Roanoke, Va. CD 4/29.

H. L. Coble Constr. Co., Greensboro, N. C. CA $152,900. ice cream PLANT, GREENSBORO, N. C. Guilford Dairy Co-operative Assn., Greensboro, N. C. Bids Oct. 9. (Correction—cost). CD 10/22 under CA.

▲ Daniel Constr. Co., P.O. Box 2286, Greenville, S. C. CA $4,600,000. DORMITORY QUADRANGLE, CLEMSON, S. C. Clemson College, Clemson, S. C. Bids Sept. 25. CD 10/5, under LB.

A. R. Abrams, 362 Jones Ave. N. W., Atlanta, Ga., CA, $300,000, 3rd Street MEDICAL OFFICE addns. ATLANTA, GA. Samuel Rothberg Realty Co., 575 Peachtree St. N. E., Atlanta, Ga.

Cecil's Inc., P. O. Box 1895, Spartanburg, S. C., LB, $619,256, elementary-high SCHOOL, TALBOTTON, GA. Talbot Co. Bd. Educ., Talbotton, Ga. Bids Oct. 15. CD 9/18.

▲ Arnold Constr. Co., 7 Murray Bldg., Palm Beach, Fla., CA, $1,145,377, North East High SCHOOL, CD 10/15;

Clearwater Constr. Co., 300 N. Osceola Ave., Clearwater, Fla., CA, $450,051, Negro Junior-Senior High SCHOOL,

Coolite glass affords clean, attractive design in plant of John Baumgarth & Co., Printer, Melrose Park, Illinois. Architect: John S. Cromelin; General Contractor: Clearing Industrial District, Glazier: Hamilton Glass Company.

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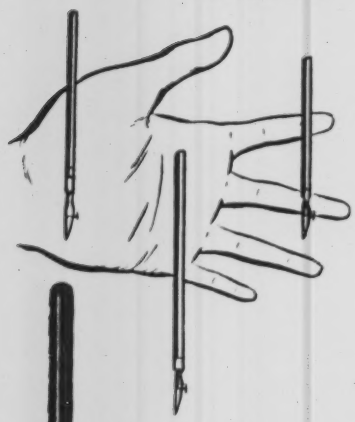

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CLEARWATER, FLA. Pinellas Co. Bd. P. Instruction, 305 Haven St., Clearwater, Fla. Bids Oct. 14. CD 9/4.

**R. M. Thompson Co.**, 712 Grand Central Ave., Clearwater, Fla., CA, $300,000 BANK and OFFICE, CLEARWATER, FLA. First Federal Savings & Loan Assn., Clearwater, Fla. Bids Sept. 23.

**Equity Bldg. Corp.**, 225 S. E. 6 Ave., Ft. Lauderdale, Fla., Owner Builds, $350,000 APARTMENT, FORT LAUDERDALE, FLA.

**John B. Orr, Inc.**, 485 N. W. 54 St., Miami, Fla., CA, $100,000 PLANT addns., MIAMI, FLA. Merrill-Stevens Dry Dock Co., 1270 N. W. 11 St., Miami, Fla.

**W. A. Thompson & Chas. R. DeLongchamp**, 149 Bentley Dr., Miami Springs, Fla., CA, $86,000 equipment WAREHOUSE, MIAMI SPRINGS, FLA. Town, Miami Springs, Fla.

**Gates Constr. Co.**, 1523 Grand Central Ave., Tampa, Fla., CA, $208,350, WAREHOUSE, TAMPA, FLA. Raybro Electric Supplies, Inc., 814 E. Twiggs St., Tampa, Fla. Bids Oct. 15. CD 10/9.

**J. H. West & Son**, 4210 First Ave. N., Birmingham, Ala., CA, $100,000 PLANT addn., BIRMINGHAM, ALA. Birmingham Mfg. Co., 10 Ave. and 35 Pl. N., Birmingham, Ala. Bids Oct. 9. CD 10/1.

**Richardson Constr. Co.**, 429 S. 24 St., Birmingham, Ala., CA, $125,000 WAREHOUSE addn., BIRMINGHAM, ALA. Wood Fruitticher Grocery Co., 3600 3 Ave. S., Birmingham, Ala.

**Robins Engr. Co.**, 805 Acton Ave., Birmingham, Ala., CA, $90,000 SHOP-OFFICE, BIRMINGHAM, ALA. R. J. Thomas Co., 1005 5 Ave. N, Birmingham, Ala.

**Koppers Co., Inc.**, Koppers Bldg. Pittsburgh, Pa., CA $500,000, COKE OVENS, FAIRFIELD, ALA. Tennessee, Coal & Iron Co., Fairfield, Ala.

**M. G. Overstreet**, P. O. Box 174, Montgomery, Ala., LB, $454,745, Oak Ridge SCHOOL, PELL CITY, ALA. St. Clair Co. Bd. Educ., Ashville, Ala. CD 8/11.

**J. M. Brown Constr. Co.**, Box 102, Shreveport, La. LB $779,572. elementary SCHOOL, gymnasium, football stadium, lunch room, related items, SPRINGHILL, LA., Webster Parish School Bd., Minden, La. Neild-Somdal Assn., 960 Jordan St., Shreveport, La., archts. Bids Oct. 13. CD 9/30, under Unclassified.

▲† **Robert Simmons Constr. Co.**, 840 Barrett Ave., Louisville 4, Ky. CA $1,156,000. heavy tank and artillery SHOP, FORT KNOX, KY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. CD 10/19, under LB.

**Struck Constr. Co.**, 147 N. Clay St., Louisville, Ky. CA $170,000. foundation and slab for FACTORY, LOUISVILLE, KY. Marley Co., 600 Bergman St., Louisville, Ky. Bids Oct. 19, awarded Oct. 21. CD 9/2.

**Baskerville Builders**, 1650 Island Home Ave., Knoxville, Tenn., LB $381,000. LODGE BLDG., KNOXVILLE, TENN. Knoxville Elks Lodge No. 160, 1141½ E. Vine Ave., Knoxville, Tenn.

## MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

O., Cleveland—B.A. 11/5—Cuyahoga Co., Court House, road imprvs., wid'n., resurf. and b. conc. reconstr. of Fairmount Blvd. from SOM Center to Chagrin River Rds., Hunting Valley Village. Plans deposit $15. Albert S. Porter, c/o owner, county engr. CD 7/8.

O., Toledo—B.A. 11/6—Comrs. Lucas Co., Court House, Water Supply Line 400, approx. 15,800 ft. 24 in. and 21,400 ft. 16 in. steel cyl. pre-stressed concrete pressure pipe, Class 150, Trilby and Westwood area in Sewer Dists. 4, 9 and 13. $610,738. Plans deposit $10. Ray E. Hall, co. sanitary engr. CD 7/13.

Ill., Pearl—B.A. 11/13—Village, Village Hall, WW sys. imprvs., incl. water supply and storage imprvs., 2,960 lin. ft. 4 in. c.i. pipe, 6 fire hydrants, 10 gate valves and boxes, 10 cut-ins to existing sys., misc. fittings, 660 lin. ft. ¾ in. copper service pipe, 119 services. Plans deposit $10. Caldwell-Rhoads Co., West College at Diamond, Jacksonville, engr.

Mich., Marysville—B.A. 12/3—City, Mildred Falarddeau, clk., Marysville, sewage disposal plant, sewage treatment plant and sewage pumping station. $500,000. Plans deposit $15. Pate & Hirn, 532 Michigan Bldg., Detroit, engrs. CD 12/12.


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BIDS ASKED—BUILDINGS

Wis., Wisconsin Rapids—SCHOOL—B.A. 11/11—Assumption Catholic High School, Wisconsin Rapids, high school. $800,000. Extended date. A. F. Billmeyer & Son, 172 2 St. S., archts. CD 10/13.

## HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—Ohio Turnpike Comn., 139 E. Gay St., Columbus,

T. L. James Co., Ruston, La. LB $11,291,450, 12.1 mi. Constr. Sects. C-17, C-18 and C-19, Cuyahoga Co. Bids Oct. 10. CD 9/18.

▲ Kassouf Co., 9715 Clinton Ave., Cleveland, O., CA $130,587. reconstr. W. 117 St. concrete storm and sanitary sewer; CA $362,431, constr. concrete and metal Big Creek branch storm sewer from W. 140 St. to Puritas Rd.;

Curro Constr. Co., 19200 Puritas Rd., Cleveland, O. CA $632,854, constr. E. 20 and E. 22 St. storm sewer exten., corrugated metal and general surface drainage in Lakefront area, CLEVELAND, O. Grand total $1,125,872. City, City Hall, Cleveland 14, O. John C. Wenrick, c/o owner, city engr. Awarded Oct. 14. CD 11/14/50.

† James I. Barnes Co., 6 Bechtle Ave., Springfield, O. LB $489,192, est. $458,494, 150x200 ft. aeromedical laboratory bldg.;

Swan Constr. Co., 501 W. 11 St., Newport, Ky., LB $418,958, est. $482,552, 70x250 ft. ground support laboratory, Eng-15-029-54-81, Wright Patterson Air Force Base, DAYTON, O. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids Oct. 16. CD 10/5.

Chicago Bridge & Iron Co., 332 S. Michigan Ave., Chicago, Ill. CA $64,525, 250,000 gal. water storage tank, NORTH MADISON, O. Comrs. Lake Co., Court House, Painesville, O. Awarded Oct. 13.

John F. Beasley Constr. Co., Inc., Box 1624, Muskogee, Okla. CA $225,000. television transmitting tower, 1,000 ft. triangular structure, 11 ft. each side on Mabel St., YOUNGSTOWN, O. WFMJ Broadcasting Co., 101 W. Boardman St., Youngstown, O. Truscon Steel Co., 1315 Albert St., Youngstown, O., engr. CD 10/3/52.

† Anderson Electric Co., Danville, Ill., CA, $132,350, est. $155,200, primary electric power, aerial and underground street lighting, transformer banks and secondary service bldgs., SCOTT AIR FORCE BASE, Ill. U. S. Eng., Merchandise Mart, Chicago, Ill. CD 1/28.

† Mayfair Constr. Co., 5660 N. Kedzie St., Chicago, Ill., LB, $918,990, 26,000 sq. ft. administration bldg., 17,600 sq. ft. warehouse, 1,480 sq. ft. boiler plant, adjacent accessways, SCOTT AIR FORCE BASE, ILL. U. S. Eng., 475 Merchandise Mart, Chicago, 54, Ill. Bids Oct. 1. CD 9/9.

WISCONSIN—State Hy. Comn., State Office Bldg., Madison,

C. R. Meyer & Sons Co., Oshkosh, Wis., LB, $823,999 Contract 1, structures B-70-6, B-70-7 and B-70-8, S.T.H.21-Brooks Corners (Lake Butte des Morts Structures) Road, U.S. Hy. 41, Proj. F 032 (12), Winnebago Co. CD 9/25;

Robert W. Ryan Co., Janesville, Wis., LB, $92,104, Contract 1, structure, grading, base course 1.58 mi. Vienna-Honey Creek (Vienna Bridge and Approaches) and S.T.H.11-Vienna Road, C.T. Hy. "DD" Proj. S 0880 (1) and S 0880 (2), Walworth Co. Bids Oct. 20. CD 10/1.

WISCONSIN—State Hy. Comn., State Office Bldg., Madison,

John F. Bloomer Co., Appleton, Wis., LB, $849,950 Contract 1, grade, ballast and base course 4.759 mi. S.T.H.21-Brooks Corners Rd., U.S. Hy. 41, F 03-2 (14), Winnebago Co., CD 9/25;

Robert W. Ryan Co., Janesville, Wis., LB $161,295 Contract 1, grading, base course 1.346 mi. West Beloit Road-West County Line-U.SH. 45 Section C.T. Hy. "T" S 0347 (2), Milwaukee Co., Bids Oct. 20, CD 10/1.

Julius Porath & Sons, 702 Transportation Bldg., Detroit, Mich. CA Est. $200,000. repairing 6 in. c. conc., integral curbs replacements, repairing various sections of carred surface, WYANDOTTE, MICH. City, Wilfred Kane, purch. agt., Wyandotte, Mich. Bids Aug. 11.

## BUILDINGS

LOW BIDS AND CONTRACTS

▲ Gust K. Newberg Constr. Co., 2040 N. Ashland Ave., Chicago 14, Ill. CA Est. $160,000,000, general contract second ENGINE PLANT in Brook Park, and STAMPING PLANT in Walton Hills, CLEVELAND, O Ford Motor Co., 3000 Schaefer St., Dearborn, Mich. CD 6/29 and 4/28.

Sever-Williams Co., Washington Court House, O., CA $680,133, general constr. 2 story, L-shaped, brick, concrete, steel Bishop Watterson HIGH SCHOOL, Cooke Rd. near High St., COLUMBUS, O. Diocese of Columbus, 198 E. Broad St., Columbus, O. CD 4/30

B. G. Danis Co., Inc., 1518 E. 1 St., Dayton, O., CA $369,520, general constr. Kemp SCHOOL addn., DAYTON, O. Bd. Educ., 232 N. Main St., Dayton, O. Bids Oct. 12. CD 9/23.

▲ H. B. Layne Contractor, Inc., 607 Arcue Bldg., Springfield, O. Owner Builds. $6,000,000. 600 prefabricated HOUSES, in S. Maple Ave. area; $500,000 6-store unit SHOPPING CENTER, FAIRBORN, O.

▲† Lake Shore Electric Corp., Bedford, O., CA $918,800, auxiliary power unit sub-stations for one of process bldgs.;

General Electric Supply Co., Portsmouth, O., CA $102,750, crane feedrail sys. for one of process bldgs.;

Reliance Steel Products Co., 4000 Walnut St., McKeesport, Pa., CA $451,160, furnish misc. iron for one of production units;

Merritt-Chapman & Scott, 260 Madison Ave., New York, N. Y., CA $1,086,066, recirculating water sys. for pump house;

Automatic Sprinkler Corp. of America, Jones and Brittain Sts., Youngstown, O., CA $139,565, equipment fire protection of a sub-station for Gaseous Diffusion PLANT (Subcontractors under Peter Kiewit Sons' Co., P. O. Box 268, Portsmouth, O.) for Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash., D. C., PIKETON and WAKEFIELD, O. Grand total $2,698,341. CD 8/13/52, under CA.

Hossler Constr. Co., Tiffin, O., CA. Est. $400,000. general constr. for King Memorial DORMITORY, TIFFIN, O. Heidelberg College, Tiffin, O. CD 8/6.

Gerometta Constr. Co., 1900 E. 7 St., Gary, Ind., CA, $400,000, CHURCH, GARY, IND. Temple Beth-el, corner 5 and Roosevelt St. Gary, Ind. Bids Aug. 10, awarded Oct. 12. CD 7/15.

City, City Hall, Evanston, Ill., rejected bids Sept. 30, three FIRE STATIONS, 2830 Central Ave., 702 Madison St. and 1105 Central St., EVANSTON, ILL. LB, $494,471. CD 10/14, under LB.

Jas. P. Jansen Co., 5376 N. Teutonia Ave., Milwaukee 9, Wis., CA, $608,000, 38 24x36 ft., frame duplex FLATS, MILWAUKEE, WIS. Howard Crawford Realty Co., 135 W. Wisconsin Ave., Milwaukee 3, Wis.

George W. Auch Co., 3646 Mt. Eliot St., Detroit, Mich. CA Est. $500,000. 1 story, bsmnt., brick, stone CHURCH, Orangelawn St., DETROIT, MICH. Epiphany R. C. Parish, Peter P. Jordon, pastor, 10501 Orangelawn St., Detroit, Mich. McGrath & Dohmen, 2631 Woodward St., Detroit, Mich., archts. CD 2/26.

Palmer-Smith Co., 415 Brainard St., Detroit, Mich. CA Est. $350,000. 2 story, brick, masonry DIAL TELEPHONE EXCHANGE No. 5, LIVONIA, MICH. Michigan Bell Telephone Co., Cass Ave., Detroit, Mich. Bids Sept. 23. CD 9/14.

## WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 5 Kansas
STREETS AND ROADS
November 3 Iowa
November 5 Kansas

Okla., Oklahoma City—SWIMMING POOL—B.A. 11/10—City, City Hall, swimming pool, Girvin Park, $124,342. Stone & Settle, 1225 Linwood St., archts. CD 10/28/52.

† Tex., Marshall—UTILITIES—B.A. 11/10—U. S. Eng., Box 61, Tulsa 2, Okla. (a) installing approx. 49,000 lin. ft. 1- to 14-in. water pipe, appurtenances; (b) 150,000 gal. steel water storage tank; (c) removal 4,300 lin. ft. pipe, etc. $110,000; (d) sanitary sewer lines, $60,000; (e) gas lines, $62,500. Longhorn Ordnance Works, Inv. No. ENG-34-066-54-26.

BIDS ASKED—BUILDINGS

Tex., Beaumont—GYMNASIUM—B.A. 11/10—Lamar State College of Technology, c/o Bd. Regents, Beaumont, Union-Gymnasium addns., alterations, $300,000. Plans deposit $25. Stone & Pitts, 1872 Calder St., engrs.-archts. Landauer & Shafer, 4801 Lemmon St., Dallas, engrs. CD 11/19.

▲ Tex., Dallas—LIBRARY—B.A. 11/17—City, City Hall, Main and Harwood Sts., public library, $2,140,000. George L. Dahl, 2101 N. St. Paul St., archt. CD 5/8/52.

† Tex., Texarkana—PLANT—B.A. 11/17—U. S. Eng., Box 61, Tulsa 2, Okla., addnl. constr. in Area "G", steel frame, masonry constr., Long Star Ordnance Plant, Inv. No. Eng-34-066-54-25. $500,000. CD 7/6/51.

Neb., Hastings—HOSPITAL—B.A. 11/18—State Bd. Control, Lincoln, 5 story, 44x190 ft. medical surgical bldg., at Hastings State Hospital. $450,000. L. A. Daly Co., Insurance Bldg., Omaha, archt. CD 7/14.

Ia., Iowa City—MEMORIAL UNION—B.A. 11/19—State Bd. Educ., State Capitol, Des Moines, memorial union bldg. addn. $600,000. CD 2/4/48.

Tex., Pettus—REFINERY—Bids Asked—Donaho Refining Co., Pettus, addnl. 5,000 bbl. per day capacity crude refinery unit, near here. $785,000.

SOON LETS CONTRACT—BUILDINGS

Tex., Houston — WAREHOUSE — Askman Distributing Service, Inc., 1817 Ruiz St., soon lets contract warehouse. $225,000. Wyatt C. Hedrick, 5201 Fannin St., engr.-archt. CD 10/9.

Tex., Houston—SUPPLY—Thermal Supply Co., 2002 McKinney St., soon lets contract 2 story, 80x105 ft., rein.-con. stucco thermal supply bldg., summer-winter air-conditioning. L. Arrondo, 1813 State St., archt.

## HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Van Dorpe Trenching Co., Marshall, Minn. CA $49,967. furnish materials, install water distr. sys., 16,150 lin. ft. mains, well, pump, pump house, pressure tank, BADGER, MINN. City, N. B. Gustafson, clk., Badger, Minn. Bids Aug. 14. CD 8/5.

▲† Phelps-Drake Co., Inc., 1414 S. 8 St., Minneapolis, Minn., LB, $1,312,256, addnl. force main and gravity sewers, TCA, Inv. 25-066-54-7, MINNEAPOLIS, MINN. U.S. Eng., 1709 Jackson St., Omaha, Neb. Bids Oct. 16 CD 9/30.

▲ IOWA—State Hy. Comn., Ames,

Larsen Bros., 10 N. Main St., Council Bluffs, Ia., LB, $1,489,853, 8-beam overhead bridge, grading, paving

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U. S. Hy. on West Broadway in Council Bluffs, UG 926 (3), Pottawattamie Co.;

**Christinsen Bros.**, 3011 Virginia St., Sioux City, Ia., LB, **$117,847,** Group 2, culvert and overhead crossing UG-2 (9), Woodbury Co. Bids Oct. 29. CD 10/7.

**▲† Mittry Constructors**, 4801 San Fernando Rd. W., Los Angeles, Calif. LB **$9,459,584,** outlet works, Stage 1, Oahe Reservoir Proj., near Pierre, Inv. 25-066-54-13, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Oct. 21. CD 10/6.

**OKLAHOMA and TEXAS**—State Hy. Dpt. Capitol, Oklahoma City, Okla., and State Hy. Comn., Austin, Tex. **Harry Newton, Graham, Tex.,** LB **$606,241,** est. $604,000, bridge over Red River between Idabel, Okla. and Clarksville, Tex. Bids Oct. 20. CD 9/30.

**Boecking Constr. Co.,** 2810 N. McArthur St., Oklahoma City 7, Okla., CA **$76,673,** est. $80,000, sewage disposal plant exten., MARLOW, OKLA. City, Marlow, Okla. Bids Oct. 15. CD 9/30.

**Central Texas Telephone Co-operative,** San Saba, Tex. Own Forces. **$80,000.** 90 mi. rural pole telephone lines, San Saba Co., TEXAS. Joe E. Ward, 608A Monroe St., Wichita Falls, Tex., engr.

**City,** City Hall, Main and Harwood Sts., Dallas, Tex. Own Forces. **$90,000,** storm sewers for portions several streets, southeast sect. of city; **$75,000,** sanitary sewers in portions several streets, southeast sect. of DALLAS, TEX. J. G. Rollins, Ch. P. Wks. Engr. CD 11/21/51.

**Mayflower Investment Co.,** Carr P. Collins, pres., 912 Commerce St., Dallas, Tex. Own Forces. **$60,000,** storm sewers; **$65,000,** sanitary sewers, DALLAS, TEX. CD 10/14.

**Mayflower Investment Co.,** Carr P. Collins, pres. 912 Commerce St., Dallas, Tex. Own Forces. **$39,500,** water lines, facilities, DALLAS, TEX.

**Mayflower Investment Co.,** Carr P. Collins, pres., 912 Commerce St., Dallas, Tex. Own Forces. **$67,500,** street grading, drainage, base course, asph. topping, concrete curbs and gutters, DALLAS, TEX.

**City,** Kilgore, Tex., Own Forces. **$55,000,** some c.i. water mains, KILGORE, TEX. A. P. Noyes, Kilgore, Tex., engr. CD 11/9/51.

**City,** Kilgore, Tex. Own Forces, Sub-Contract, **$65,000,** sewage disposal unit, KILGORE, TEX. A. P. Noyes, Kilgore, Tex., engr. CD 11/9/51.

**City,** Lubbock, Tex. Own Forces. **$70,000,** some water pipe line extens., LUBBOCK, TEX. W. B. Holmes, city engr. CD 12/29.

**Yoakum Co.,** Court House, Plains, Tex. Force Account. **$85,000,** road imprvs., grading, drainage, surf., etc. northern sect. of county; **$75,000,** road imprvs., grading, drainage, surf. etc., southern sect. of county, PLAINS, TEX. CD 8/26.

## BUILDINGS

### LOW BIDS AND CONTRACTS

**Pemant Constr. Co.,** 3719 Jennings Rd., St. Louis 20, Mo. Own Forces. Est. **$400,000.** 70 addnl. RESIDENCES concrete fdn. in Cool Valley area adjacent to Hern Ave. in Anborough subdivision, ST. LOUIS COUNTY, MO.

**Milburn Park Co.,** c/o Earl A. Thompson & Walter Franey, Mission, Kan. Owner Builds. **$500,000.** 48 HOUSES on 20 acre tract neighborhood of 7100 Craig Rd., OLATHE, KAN.

**Angus C. Wynne, Jr.,** c/o American Home Realty Co. and **Wynnewood Village, Inc.,** 2311 Salerno St., Dallas, Tex. Own Forces. **$500,000.** 30,000 sq. ft. MEDICAL BLDG., DALLAS, TEX. CD 10/5.

**Center Development Co.,** c/o M. A. S. Makris, 825 Sledge St., Houston, Tex., Owner Builds. **$335,000, (d)** 32 frame, masonry trim DWELLINGS; **$359,000, (e)** 39 frame dwellings, concrete slab fdn., DEER PARK, TEX.

**Stanley-Fogarty Co.,** Hayti, Mo. Owner Builds. **$275,000.** anhydrous ammonia fertilizer distr. PLANT unit, HOWE, TEX. CD 10/2.

**Hamilton Mill & Elevator Co.,** Sid Wieser, Hamilton, Tex. Purchases, Day Labor. $225,000. MILL, LAMPASAS, TEX. CD 10/8.

**Garrett Oil Tools, Inc.,** Longview, Tex. Purchase and Hire. $85,000, WAREHOUSING; $92,500 general SHOP expansion, LONGVIEW, TEX. CD 10/20.

**Tidmore Constr. Co.,** 1002 Avenue M, Lubbock, Tex., CA $779,860, SHOPPING CENTER, LUBBOCK, TEX. W. B. Blankenship, Lubbock, Tex. CD 10/14.

**The Austin Co.,** M & M Bldg., Houston, Tex., CA $585,000. 2 story, 60,000 sq. ft. masonry department STORE, escalators, MIDLAND, TEX. Mayer Katzman, c/o Fedway Stores, 1680 Broadway, New York, N. Y.

**▲ E. J. Burke & Sons,** 1100 Goliad Rd., San Antonio, Tex. Owner Builds. **$360,000.** Unit 5, 45 DWELLINGS; **$300,000,** -Unit 6, 30 dwellings; $352,000, Unit 7, 44 frame dwellings, concrete slab fdns., SAN ANTONIO, TEX. Grand total $1,012,000. CD 7/9.

**Fair Interests,** c/o Fair Foundation Bldg., Tyler, Tex. rejected bids Sept. 15, 8 story OFFICE, TYLER, TEX. Est. $500,000. CD 9/2.

# FAR WEST

### BIDS ASKED—HEAVY CONSTRUCTION

**† Calif., Inyokern**—B.A. 11/10—Naval Ordnance Test Station, China Lake, surf. roads and aerodynamics ballistic track range, NOY 78367, Spec. 38761, $200,000. Plans deposit $30. CD 11/15/50, under Unclassified.

**Calif., Los Angeles**—B.A. 11/12—Los Angeles County Sanitation District 21, 2020 Beverly Blvd., extension of outfall trunk sewer, Section 2-B, incl. 13,000 ft. of 30 and 36 in. pipe, Puente, $400,000. Plans deposit $5. CD 7/14.

**† California**—B.A. 11/17—U. S. Eng., 751 S. Figueroa St., Los Angeles, furnishing, installing 3 slide gates at San Antonio Dam, Claremont, Los Angeles Co., CIVENG-04-353-54-7, $100,000. CD 1/20/45.

### BIDS ASKED—BUILDINGS

**Wash., Spokane**—COURT HOUSE—B.A. 11/6—Spokane Co., County Courthouse, 4 story, bsmnt., 51x130 ft., rein.-con., masonry courthouse addn. $450,000. Whitehouse & Price, Hutton Bldg., archts. CD 5/18.

**† Ariz., Yuma**—LABORATORY, etc.—B.A. 11/18—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., signal photo laboratory and site development at Yuma Test Station, ENG-04-353-54-27. $150,000. CD 12/11.

## HEAVY CONSTRUCTION

### LOW BIDS AND CONTRACTS

**UTAH**—State Road Comn., Salt Lake City,

**J. M. Sumson & Sons,** Springville, Utah, CA **$115,865,** est. $159,000. graded roadway and two stockpiles 16 mi. Junction U. S. 160, SR 228-Castleton Junction, Grand Co. Bids Oct. 13. CD 10/5.

**City,** City Hall, Portland, Ore., rejected bids Sept. 22, laterals for West Central Unit Intercepting Sewage Proj., PORTLAND, ORE. LB **$531,219.** CD 9/29, under LB.

**▲ CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

**J. A. Payton,** Box 207, Riverside, Calif., CA, **$1,094,357,** grading, surf., 2 rein.-con. bridges 3.9 mi. between International Border and Nestor, San Diego Co. Bids Sept. 24. CD 10/1, under LB.

**CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

**Watkin & Sibbald,** 6 Bridge St., San Anselmo, Calif., LB, **$60,726,** plant and surf. 2.2 mi. Santa Barbara Co.;

**Madonna Constr. Co.,** P.O. Box 910, San Luis Obispo, Calif., LB **$695,878,** grading, paving, 2 rein.-con. bridges 7.3 mi. between Huer Huero Creek and Estrella River, San Luis Obispo Co. Bids Oct. 14. CD 9/22.

**▲ CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

**Webb & White,** 7220½ Melrose Ave., Los Angeles, Calif., LB, **$478,074,** grading, paving, rein.-con. bridge 1.1 mi. Slauson Ave. between Telegraph Rd. and Rosemead Blvd., Los Angeles Co.;

**A. L. Johnson,** 1543 San Fernando Rd., Newhall, Calif., CA, **$179,263,** grading, surf. 1.9 mi. San Diego Co.;

**L. C. Anderson Co. & E. P. Ford,** 3040 Hancock St., San Diego, Calif., LB, **$386,477,** grading, surf., rein.-con. bridge 1.9 mi. San Diego Co. Bids Oct. 15.

**CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

**M. J. Ruddy & Son,** 922 J St., Modesto, Calif., LB, **$300,746** wid'n., resurf., widening 2 rein.-con. bridges and 1 bridge 3.9 mi. near Merced, Merced Co. Bids Oct. 7. CD 10/16, under LB.

**† W. E. Kier Constr. Co.,** 2323 E. Rosecrans Ave., El Segundo, Calif., LB, **$642,700,** Randsburg Wash Test Range Rocket Facilities, NOY 78362, Spec. 38756, INYOKERN, CALIF. Naval Ordnance Test Station, Inyokern, Calif. Bids Oct. 15. CD 9/23.

## BUILDINGS

### LOW BIDS AND CONTRACTS

**† J. G. Watts Constr. Co.,** 4538 Macadam, Portland, Ore., LB, **$555,969,** est. $554,200, eight 1 story steel frame bldgs., incl. ADMINISTRATION, SERVICE, BADGE and PATROL buildings etc., at Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Richland, Wash. Bids Oct. 19.

**C. M. Corkum Co.,** 2630 S.W. 2nd St., Portland, Ore., LB **$107,634,** 60x200 ft. oil-packaging PLANT, concrete tilt-up, PORTLAND, ORE. Quaker State Oil Refining Co. of Calif., 56 S.E. Belmont St., Portland, Ore. Bids Oct. 15. CD 10/9.

**Ruane Corp.,** 8425 Las Tunas Dr., San Gabriel, Calif., LB, **$563,800,** general contract WARD BLDG. No. 1 Fairview State Hospital, FAIRVIEW, CALIF. State Div. Architecture, 1100 S. Grand St., Los Angeles, Calif. Bids Oct. 14. CD 9/24.

**The Commodore Co.,** 9838 E. Belmont St., Bellflower, Calif. CA, **$484,800.** 48 stucco DWELLINGS, Stearns El Paseo Sts., Kallin and Roxanne Aves., LAKEWOOD, CALIF. Dogwood Homes, Inc., Birch Homes, Inc., Elderwood Homes, Inc., Cypress Homes, Inc., 9838 E. Belmont St., Bellflower, Calif.

**▲ William J. Moran Co.,** 1011 S. Fremont Ave., Alhambra, Calif., CA **$1,500,000.** design and construct 84,000 sq. ft. PLANT, ORANGE, CALIF. Anaconda Wire & Cable Co., subsidiary of Anaconda Copper Mining Co., 25 Broadway, New York, N. Y. CD 9/24.

**Meadows Constr. Co.,** 1128 Crenshaw Blvd., Los Angeles, Calif., Owner Builds, **$409,500,** 63 stucco DWELLINGS, Hutchcrott and Lasillette Sts., Temple and Peith Aves., PUENTE, CALIF.

**▲ Stolte, Inc.,** 8451 San Leandro St., Oakland, Calif., LB, **$1,443,392,** county OFFICE and COURT BLDG., RICHMOND, CALIF. Contra Coatra Co., Court House, Richmond, Calif. Bids Oct. 13. CD 9/30.

**† Coordinated Construction, Inc.,** 12901 Crenshaw Blvd., Hawthorne, Calif., CA, **$459,534.** test and conditioning FACILITY bldgs., Naval Ammo. and Net Depot, NOY 78538, Spec. 38924, SEAL BEACH, CALIF. P. Wks. Office, Dpt. Navy, San Diego, Calif. Bids Oct. 6.

# CANADA

### BIDS ASKED—BUILDINGS

**Ont., Sudbury**—GARAGE, etc—B.A. 11/6—Sudbury Motors Ltd., 138 Elm St., superstructure for 1 story, 76x220 ft., concrete, brick, block garage and office. $500,000. O'Gorman & O'Gorman, 209 Mackey Block, archts.

**▲ Ont., Toronto**—APARTMENT BLOCKS—B.A. 11/6—Housing Authority of City of Toronto, City Hall, two 6 story, 72 suites, concrete, brick apartment blocks in Regent Park No. 28 and 29, $1,200,000. Plans deposit $50. J. E. Hoare, Jr., 481 Eglinton Ave. W., archt. CD 7/27.

**Ont., Williamstown**—SCHOOL—B.A. 11/10—Charlottenburgh-Lancaster District High School Bd., W. J. Murray, secy.-treas., Williamstown, L-shaped, steel, brick high school. $400,000. Plans deposit $50. H. H. Roberts, Westport, archt. CD 6/19.

## HEAVY CONSTRUCTION

### LOW BIDS AND CONTRACTS

**Provincial Engineering Ltd.,** 66 King St. W., Hamilton, Ont., CA, **$87,000,** outdoor sub-station and electrical distr. sys., 27 C.O.D. London, Job No. 2535, LONDON, ONT. Defence Constr. Ltd., 40 Eglington Ave. E., Toronto 12, Ont.

**Curran & Briggs Ltd.,** 61 Haverson Blvd., Toronto, Ont., CA, **$180,303,** 16x25 ft. concrete culvert, 730 ft. long, Junction Creek Culvert, Minto to Larch Sts., SUDBURY, ONT. City, 83 Cedar St., Sudbury, Ont. Awarded Oct. 15. CD 11/18/43.

**Brunet & Freres Ltee,** 1 Strathmore Blvd., Dorval, Que., CA **$83,069,** water mains in Rechard, St. Charles, Borromee and Pierre Sts.;

**St. Denis Constr. Ltee,** 1540 Beauregard St., Ville Jacques Cartier, Que., CA, **$53,150.** 16 in. water mains in St. Charles, St. Pierre & de Lanaudiere Sts., JOLIETTE, QUE. City, R. Jette, secy., Joliette, Que. CD 6/12/52.

## BUILDINGS

### LOW BIDS AND CONTRACTS

**▲ Christenson & MacDonald Ltd.,** 612 Tegler Bldg., Edmonton, Alta., CA, **$1,811,268,** brick, stone Strathcona Composite High SCHOOL, EDMONTON, ALTA Edmonton Public School Bd., Edmonton, Alta. Rule, Wynn & Rule, 11422 Jasper Ave., Edmonton, Alta., archts. CD 3/4.

**Newfoundland Engineering & Constr. Co.,** Water St., St. Johns' Newfoundland, CA, **$100,000,** GARAGE, SERVICE STATION and parking lot in new housing area, ST. JOHN'S, NEWFOUNDLAND. George R. Parsons, Ltd., Kings Rd., St. John's, Newfoundland. Rennie & Horwood, Bd. of Trade Bldg., St. John's Newfoundland, archts. CD 8/5.

**Johnson Brothers Co. Ltd.,** 37 Market St., Brantford, Ont., CA, **$233,150,** POWER HOUSE and LAUNDRY part of new expansion, BRANTFORD, ONT. Brantford General Hospital, Terrace Hill and Ontario St., Brantford, Ont. Bids Oct. 6, awarded Oct. 15. CD 10/1.

**Olmstead & Parker Constr. Co., Ltd.,** 121 Shaw St., Hamilton, Ont., CA, **$361,382,** 2 story 60x250 ft. stone, brick TRAINING bldg. at Canadian Army Staff College, KINGSTON, ONT. Defence Constr. Ltd., 40 Eglinton Ave. East, Toronto, Ont. Bids Sept. 22, awarded Oct. 15. CD 9/2.

**Cecil Carpenter Constr. Co. Ltd.,** Eastbourne (Ottawa), Ont., CA, **$432,000,** three 60 unit, multiple HOUSING units, Britanny Dr., OTTAWA, ONT. Rockledge Terrace Ltd., 69 Sparks St., Ottawa, Ont. Belcourt & Blair, 233 Metcalfe St., Ottawa, Ont., archts.

**Ellis Don Constr. Co.,** 19 King St., London, Ont., CA, **$600,000,** brick, steel high SCHOOL, ST. THOMAS, ONT. St. Thomas & Central Elgin High School Bd., D. E. McLachlin, secy., St. Thomas, Ont. Bids Oct. 7, awarded Oct. 17. CD 9/21.

**Angus Robertson Ltd.,** 57 Bloor St. W., Toronto, Ont., CA, **$700,000;** part one and part 2 story, 90x216 ft., 45x65 ft. TRUCKING TERMINAL and REPAIR DEPOT, at Brown's Line and Queen Elizabeth Way, on 20-acre site, TORONTO, ONT. Kingsway Transports Ltd., 223 Esplanade St. E., Toronto, Ont. Awarded Oct. 15. CD 6/24.

**▲ A. E. Rule Ltd.,** 451 Victoria Park Ave., Toronto, Ont., CA, **$150,000,** 2 story, 93x100 ft., brick, concrete paint WAREHOUSE, TORONTO, ONT. Treleco Ltd., 518 Yonge St., Toronto, Ont. N. A. Armstrong, 19 Melinda St., Toronto, Ont., archt. Awarded Oct. 19.

**▲ D'Amours et Frere Ltee,** 2633 Bourbonniere St., Montreal, Que., CA, Est. **$1,000,000,** CLINIC, Rachel and Parthenais Sts., MONTREAL, QUE. Institute Bruchesi, 1463 St. Hubert St., Montreal, Que. Chevier Lemieux & Mercier, 1065 Pratt Ave., Outremont, Que., archt. CD 9/28.

**Douglas Brenner Constr. Ltd.,** 5965 Monkland Ave., Montreal, Que., CA, **$576,738,** 3 story, H-shaped 183x300 ft. High SCHOOL, Green St. near C.P. Ry., ST. LAMBERT, QUE. Chambly County Protestant School Committee, H. B. Lee, secy., St. Lambert, Que. A. L. Perry, 1434 St. Catherine St. W., Montreal, Que., archt. CD 11/13/47.

**J. A. Verret Ltee,** 86 Wellington St. N., Sherbrooke, Que., CA, **$160,000,** 2 and 3 story, concrete, brick, stone newspaper PLANT addn., SHERBROOKE, QUE. La Tribune Ltee, 221 Dufferin St., Sherbrooke, Que. CD 10/14.

**L. Tobie Raymond,** 1298 Beatty Ave., Verdun, Que., CA, **$300,000,** 3 story, 48-suite, 50x142 ft., APARTMENT, River Ave. and Wellington St., VERDUN, QUE. Dr. A. D. Archambault, 4600 Lasalle Blvd., Verdun, Que. J. M. Dube, 1001 2 Ave., Verdun, Que., archt.

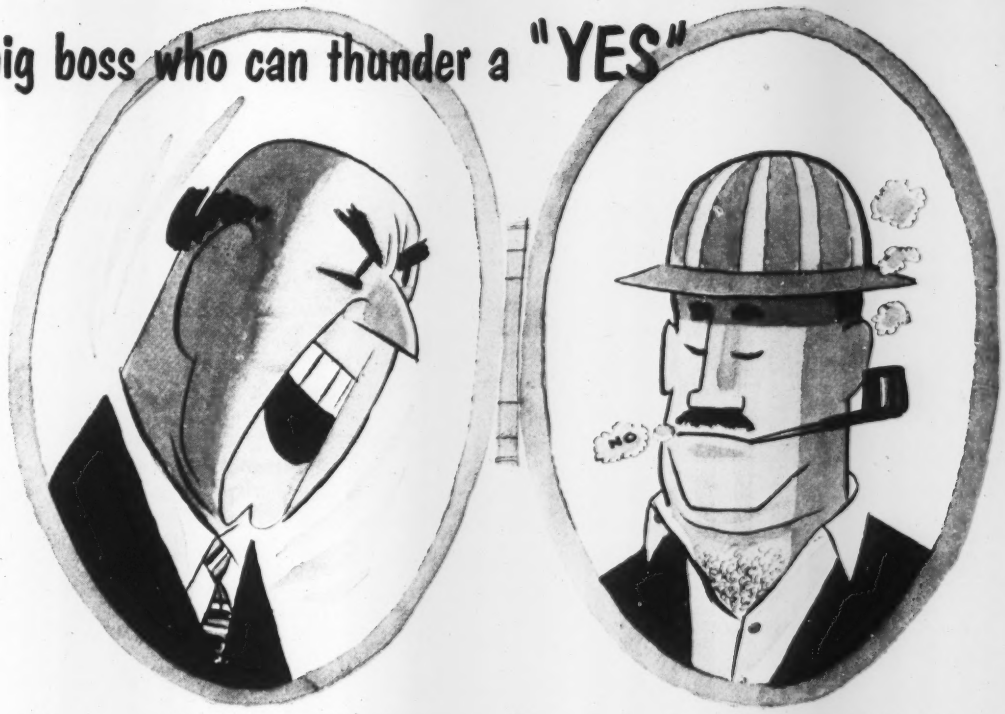
# PUERTO RICO

### BIDS ASKED BUILDINGS

**Puerto Rico, Ponce**—HOSPITAL—B.A. 12/15—P. Wks. Dpt., Ponce, Phase 1, Part III, Ponce Hospital Center

(Proposal Advertisements see pp. 97 to 102)

# the big boss who can thunder a "YES"




# and the little boss who quietly shakes his head "NO"

Both types are important to you because both have to be sold on your product. In *every* important buying decision in this business of building, many bosses have their say before the final "OK" is given. You can't afford to overlook any of the many types and kinds of bosses that can affect your sale.

Bosses of all sizes, shapes, titles and jobs read Engineering News-Record every week because they need a reliable flow of information on all the forces and factors that make construction tick. The only place they can get all this information – and get it quickly, concisely, lucidly, and all in one package – is Engineering News-Record.

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# in construction, it takes many bosses to make one purchase

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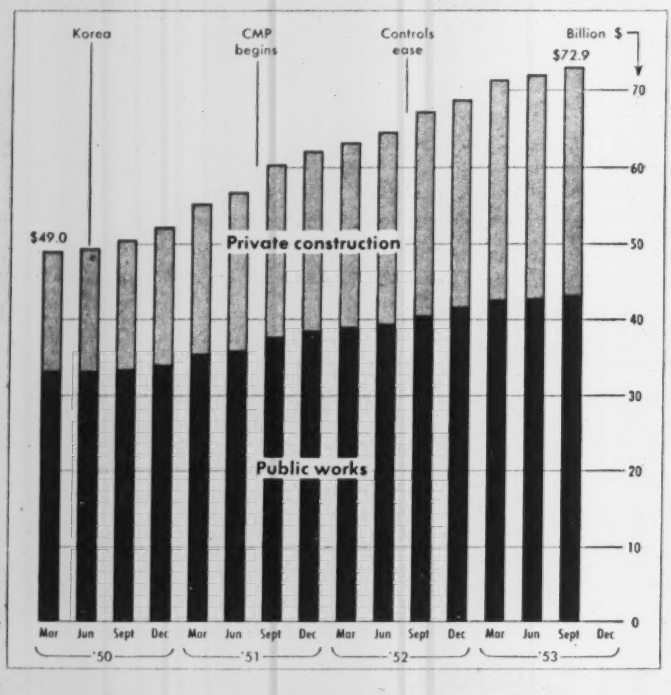



**Backlog by regions of U. S.**

| | Backlog Sept 30, '53 (millions) | Increase since Sept '52 |
|---|---|---|
| New England | $ 3,653 | $ 304 |
| Middle Atlantic | 16,754 | 1,410 |
| South | 9,592 | 962 |
| Middle West | 11,863 | 344 |
| West of the Miss. | 18,953 | 1,721 |
| Far West | 12,061 | 1,007 |
| **U.S. total** | **$72,876** | **$5,748** |

**Backlog by type of work**

| | Backlog Sept 30, '53 (millions) | Increase since Sept '52 |
|---|---|---|
| **Public works** | **$43,264** | **$2,805** |
| Waterworks | 1,567 | 54 |
| Sewerage | 2,866 | 370 |
| Highways | 6,624 | 1,042 |
| Bridges | 2,334* | 263 |
| Earthwork, waterways | 8,145 | 429 |
| Buildings | 14,988 | 589 |
| Unclassified | 6,740 | 58 |
| **Private** | **$29,612** | **$2,943** |
| Commercial buildings & mass housing | 10,820 | 1,708 |
| Industrial buildings | 11,379 | 832 |
| Unclassified | 7,413 | 403 |

*Includes $70 million for private bridges

ENR Business News

# ENR's backlog levels off for the first time since 1948

ENR's backlog of heavy construction in September dropped below the previous month, for the first time since December, 1948. The backlog leveled off at $72.9 billion, slightly under the all-time high of $73.1 billion reached in August.

The decline was partly caused by the removal from the backlog of federal post-office buildings estimated to cost $186 million which were proposed under the Truman Administration but canceled by the Republicans. This probably has no long-term significance. Postmaster General Summerfield has already announced that his department eventually must start a huge building program. Facilities in some large cities are now so inadequate that mail is being handled on sidewalks outside the buildings.

• **New work slows**—However, the September dip also reflected a slowdown in new proposed work. During the month, ENR and the Construction Daily reported proposed projects estimated to cost a total of $444 million. This is 69% below the average of $1.4 billion proposed in each of the previous eight months of this year. As might be expected, public works showed the biggest drop, but the volume of proposed private projects was also down sharply.

However, the September backlog has grown by $5.7 billion during the last 12 months, an 8.2% increase (chart above). In the 39 months since the outbreak of the Korean fighting, the backlog has climbed by about $23.5 billion, or 47.5%. This impressive growth continued during most of this year, despite fact that projects have been moving out of backlog and into contract stage at a faster clip.

• **General downturn?**—Does the September dip mean a general downturn in new proposed work? That would be hard to say. Proposed private construction was off sharply in August as well as in September. This was true all the way across the board: industrial, commercial, mass housing, and unclassified. But for the first nine months of this year, private proposed projects reached $6.3 billion, about 6% more than total in same '52 period.

In spite of the cutbacks in federal work, things are not going too badly in the public works category. Though there was a dip in September, August was a big month. Toll roads played a major part in boosting public proposed work to almost $1.2 billion for the month. So far this year, total proposed public work is $5.5 billion, up 4% over the 1952 period.

• **Backlog rises**—All of the increase in the total backlog in the last year has been in private and local government work. The private backlog rose by over $2.9 billion, compared with a $2.8-billion increase in the state and municipal backlog. The federal backlog dipped $70 million.

While new work piled up faster in the backlog in 1953 than last year, dollar volume of projects moving into contracts increased 8% over 1952. Of the total outflow of $5.3 billion so far this year, private work accounted for the biggest share, $2.6 billion. State and municipal accounted for $2 billion and federal for $0.6 billion.

# Industrial finance companies: They keep right on growing

The construction industry, now handling a record volume of work, is getting direct financial help from a relatively new source—the industrial finance companies.

Before World War II, such lenders operated in the construction industry chiefly by buying from manufacturers the retail paper created by their dealers' sales to construction men. Now these companies have moved down the stream of distribution and provide direct financing for equipment dealers and contractors. In prewar days, it was unusual for a finance company to lend money directly to a contractor. Now a contractor not only can finance new equipment through a finance company; he can borrow money for working capital by pledging his existing equipment as collateral.

Equipment financing works well. Because of the fact that construction equipment commands a ready market, in recent years the finance companies have lost very little money on such loans.

Financing of this sort has become big business; and it is getting bigger. For instance, C.I.T. Corp., the industrial financing subsidiary of C.I.T. Financing Corp., says that its volume of loans secured by construction equipment will be 60% greater this year than in 1952. This class of financing is now the biggest segment of C.I.T. Corp.'s business, though it deals with many other industries. And the company probably handles more construction equipment financing than all other finance companies put together.

• **Respectable**—For U. S. businessmen, borrowing through a finance company has become a respectable practice. Once upon a time, a resort to a finance company could be regarded as a sign of weakness. That condition has changed greatly.

However, finance-company rates aren't cheap. The usual rate is ½% per month on the original unpaid cash balance of the loan, varying somewhat with the credit standing of the borrower. Rates charges the same borrower by commercial banks may be one-third to two-thirds as much.

How then, do finance companies compete with banks?: They go out aggressively for business, offer fast service on loans, and can afford to be flexible in their lending arrangements. They often will lend money on construction equipment where a commercial bank won't. Their terms usually run from 18 months to three years, much longer than the usual unsecured loan made by a commercial bank.

It is quite customary for an equipment dealer or a contractor to be a customer of a bank and a finance company at the same time. C.I.T. Corp. says that nearly all its customers are also borrowing from commercial banks. Sometimes, too, a contractor who could borrow all the money he needs from his bank may prefer to keep his line of unsecured credit open for emergencies and borrow from a finance company.

• **Why the boom?**—What's the reason for the boom in equipment financing? For one thing, the finance companies have developed a knowledge of

## CONSTRUCTION TRENDS

### Upward movement in electric utility spending plans is money in the bank for construction industry

Capital expenditures of electric utilities—private, public and cooperative—will reach a new high of $4.5 billion in 1954. Future additions in generating capacity and other electrical system facilities promise to raise annual capital outlay to a level of $6.4 billion by 1963. These are the high spots of an electrical industry forecast prepared by ELECTRICAL WORLD, a McGraw-Hill publication.

High-level utility spending is good news for construction men. It's a generally accepted rule of thumb that 20% of utility capital outlay goes for construction. That means $900 million of construction for utilities in 1954, nearly $1.3 billion in 1963.

The following table indicates probable total utility capital expenditures for several future years based on replies to the ELECTRICAL WORLD survey.

| | Total utility capital expenditures |
|---|---|
| 1953 | $4.2 billion |
| 1954 | 4.5 |
| 1955 | 4.6 |
| 1956 | 3.9 |
| 1957 | 4.5 |
| 1958 | 4.6 |
| 1963 | 6.4 |

Private spending has grown from 69% of the total to nearly 75% in the last few years. While it is not possible to predict accurately what government expenditures will amount to in the years ahead, it seems safe to assume that government will tend to play a smaller rather than a larger role. Cooperative spending—$115 million in 1953—is likely to remain between 2% and 3% of total utility outlay.

An important factor in making 1954 a peak year is the service provided for the Atomic Energy Commission by the Ohio Valley Electric Co., Electric Energy, Inc., and the Tennessee Valley Authority. As the table indicates, ELECTRICAL WORLD anticipates some dip in 1956 when the current capacity addition program is completed, but that will be only a temporary halt. The demand for electric energy—responding to increases in population and high-level business activity—will be so great over the next ten years that expansion of facilities will be a must.

Capital spending plans of electric utilities tend to be very firm. The industry has a strong, steady growth trend. And utilities are nearly recession proof. Industry experts believe that a slowing down of business activity—even as severe as that encountered in 1937 and 1938—would have only a minor effect on electrical utility income.

Add it all up and it becomes clear that for the next ten years the utility industry can be counted on to spend an average of more than $1 billion a year on construction. That's money in the bank for construction men, because utility spending plans—if they should be revised—will be changed in only one direction, and that's upward.

the field and the people in it. The other major reason is known to any construction man: The items of equipment now used in the industry are much larger and more expensive than they used to be. To get the advantage of the most efficient equipment, contractors now have to make a very sizable capital investment, or else rent their equipment.

Equipment financing fits both these alternatives, and takes a number of different forms. For the dealer, the finance company provides wholesale financing—in other words, it lends him the money to buy his inventory from manufacturers. All this leads up to retail financing—that is, the finance company takes over the notes given the dealer by customers who are buying on time. It also provides the dealer with the cash to buy "rental fleets"—equipment he owns for the purpose of renting to contractors who prefer to rent rather than to buy. In many cases, there are tax advantages for contractors in renting rather than buying.

• **Most through dealers**—About 75% of C.I.T's current business in construction equipment is done with or through dealers. The rest is direct with contractors—either for financing new equipment or for working capital, secured by some of the contractor's present equipment. When the contractor is buying new equipment, the finance company usually requires a 25% down payment, though sometimes it may be higher. The purpose of this, of course, is to make sure that the purchaser has an interest in the equipment from the beginning, and to provide the lender with a margin of security should the equipment come back into its hands.

• **The lending process**—If you are a contractor and want a loan from a finance company, you take along your financial statements for the last few years, just as you would to your bank. The company will look up your rating with credit agencies, and check your bank references and trade suppliers. If the loan is large enough, the company may check the Bureau of Contract Information, which keeps files on jobs done by contractors, furnishing information as to whether jobs were finished on time, defaults, and so on. It may also check your bonding company.

The finance company will also study the jobs you have on hand, and it may compare your winning bids with those made by competitors. If you should go bankrupt, the lenders have the security provided by your equipment. But just the same, they want to assure themselves that there is every chance of your jobs paying off. Also, they will study your financial statement to see if you have the resources to keep going in case a job runs into unexpected difficulties or delays.

The finance company also likes to see diversification in your jobs—a number of them, spread out for a couple of years in advance, so that the equipment you are buying will be kept busy and return to you what you have put into it. It also likes to see those jobs spread out, not jammed up in such a way that your plant capacity will be strained. For the same reason, it isn't enthusiastic over would-be borrowers who have just one job.

## C. P. Street says competition will modernize building

Keener competition among contractors should do a lot to develop new cost-saving methods in an industry whose basic principles are several generations old. That's the view of C. P. Street, president of Associated General Contractors of America.

Street told the Portland, Ore., chapter of AGC earlier this month that "construction today is based on developments in foundations and use of steel and concrete which date back to 1875 and earlier—with little fundamental change." He thinks today's competitive situation may bring changes. Street estimates that bids are already down 5% to 10% from where they were 18 months ago on comparable work.

## Business briefs . . .

• **Garden State Parkway** will complete its financing next month. The New Jersey Highway Authority says it plans to borrow $135 million about mid-November. It borrowed $150 million in July.

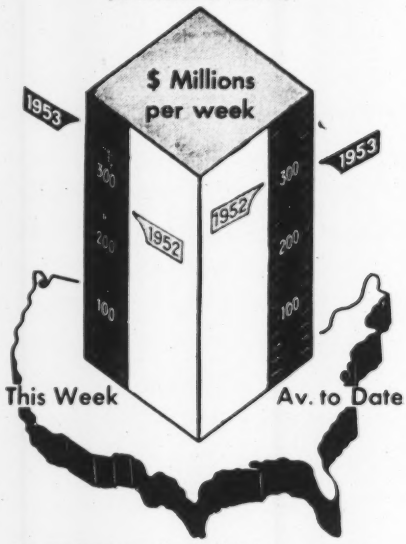
• **Dow Chemical Co.** plans to spend this year the last $75 million in its $300-million defense plant program.

• **Plywood price goes up:** M&M Woodworking Co. has boosted the price of the bellwether grade of plywood from $72 to $76 per thousand board feet.

• **New plant for Baker:** Baker Mfg. Co. is building a 40,000-sq ft plant at Beardstown, Ill., as another step in its $2-million plant expansion program. The company, which makes construction equipment, is doubling its capacity.

## Activity This Week

As reported to ENR
(in millions of dollars)




**Amount of contracts let**

| | This Week | Cumulative 44 wks 1953 | 1952 | % chge |
|---|---|---|---|---|
| Federal | $8.5 | $1,266.3 | $4,219.4 | −70 |
| State and municipal | 87.9 | 4,268.4 | 3,564.5 | +20 |
| Total pub. | 96.4 | 5,534.7 | 7,783.9 | −29 |
| Total priv. | 262.0 | 7,330.9 | 5,918.4 | +24 |
| **U. S. total** | **$358.4** | **$12,865.6** | **$13,702.3** | **−6** |
| **Contracts by type of work** | | | | |
| Waterworks | $2.9 | $200.8 | $188.9 | +6 |
| Sewerage | 8.1 | 370.6 | 251.4 | +47 |
| Bridges | 17.1 | 596.6 | 345.2 | +73 |
| Highways | 36.5 | 1,532.9 | 1,279.3 | +20 |
| Earthwork, Waterways | 1.9 | 314.3 | 424.0 | −26 |
| Buildings: | | | | |
| Public, excl. hsg. | 24.5 | 1,460.1 | 4,037.1 | −64 |
| Housg., pub. | 1.2 | 340.7 | 552.8 | −38 |
| Housg., priv. | 53.3 | 3,050.3 | 2,536.5 | +20 |
| Commercial | 26.7 | 1,005.9 | 561.9 | +78 |
| Industrial | 178.3 | 2,460.8 | 2,368.0 | +4 |
| Unclassified | 7.9 | 1,533.5 | 1,154.2 | +33 |
| **Total** | **$358.4** | **$12,865.6** | **$13,702.3** | **−6** |

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

**New capital for construction**

| | Week of Oct. 22 1953 | Cumulative 43 Wks 1953 | 1952 | % chge 1952-53 |
|---|---|---|---|---|
| Corporate securities | $55.3 | $3,694.8 | | +15 |
| State and municipal: | | | | |
| Excluding housing | 225.0 | 3,577.1 | | +42 |
| Housing | 5.5 | 242.6 | | −17 |
| Federal loans | 3.5 | 96.5 | | −70 |
| Federal aid | ... | 770.9 | | +40 |
| **Total non-federal** | **$292.8** | **$8,382.0** | | **+21** |
| Federal appro.: | | | | |
| In U. S. | ... | $1,566.7 | | −79 |
| Outside U. S. | ... | 28.9 | | −85 |
| **Total new capital** | **$292.8** | **$9,977.7** | | **−31** |

**ENR indexes**

| | | Base Years = 100 1913 | 1926 | 1949 |
|---|---|---|---|---|
| Construction cost | Oct | 610.76 | 293.59 | 128.04 |
| | Sept | 610.17 | 293.31 | 129.91 |
| Building cost | Oct | 436.31 | 235.86 | 124.03 |
| | Sept | 436.10 | 235.74 | 123.97 |
| Volume | Sept | 487 | 198 | 141 |
| | Aug | 487 | 198 | 141 |

# OFFICIAL PROPOSALS

*RATE:* The rate for Official Proposal advertising is $1.50 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

*CLOSING DATE:* Friday 10:30 A.M. for issue dated the following Thursday.

*SEND COPY TO:* Official Proposal Division, Engineering News-Record 330 West 42nd Street New York 36, N. Y.

Bids: November 5, 1953

## New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 5th day of November 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

| County | Contract No. | Name | Miles | Type | Deposit | Estimated Cost of Work |
|---|---|---|---|---|---|---|
| | | DISTRICT No. 1 | | | | |
| | | G. L. Nickerson, District Engineer, 353 Broadway, Albany, N. Y. | | | | |
| | | DISTRICT No. 2 | | | | |
| | | L. Ketchum, District Engineer, 109 No. Genesee Street, Utica, N. Y. | | | | |
| | | DISTRICT No. 3 | | | | |
| | | William Robinson, District Engineer, 301 E. Water Street, Syracuse, N. Y. | | | | |
| | | DISTRICT No. 4 | | | | |
| | | E. G. H. Youngmann, District Engineer, Barge Canal Terminal, Rochester 1, N. Y. | | | | |
| | | DISTRICT No. 5 | | | | |
| | | C. R. Waters, District Engineer, 65 Court Street, Buffalo, N. Y. | | | | |
| | | DISTRICT No. 8 | | | | |
| | | J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y. | | | | |
| Albany, Greene, Schen. Herk., Mad., Mont., Oneida, Cay., Onon. Seneca, Gen., Monroe, Ont., Erie, Oran., Rock., Ulster, West. | T.U.B. 53-1 | New York State Thruway—Hudson, Catskill, Mohawk, & Ontario Sections. Toll Utility Buildings, Plaza Islands and Plaza Canopies | | 40 Conc. Block Toll Utility Buildings, Plaza Islands and Plaza Canopies and Misc. Work | $130,000 Plans $50 | $2,380,000 |
| | | NOTE: Plans and Proposals for T.U.B. 53-1 May be Procured Only at Our Albany & New York City Offices. | | | | |
| DIST. No. 1, G. L. Nickerson, District Engineer, 353 Broadway, Albany, N. Y. | | | | | | |
| Albany | R.C. 53-128 | Albany-Watervliet S.H. 977 | 0.10 | Asp. Conc. Ty. 1A, Opt. = 0.01 Mi. Misc. Work (Rep. Exist. Culv.) = 0.09 Mi. | 1,800 Plans $10 | 34,000 |
| DIST. No. 3, William Robinson, District Engineer, 301 E. Water Street, Syracuse, N. Y. | | | | | | |
| Cayuga | FARC 53-114 FASH 53-13 FARC (OT) 53-113 RC (OT) 53-124 | Montezuma-Cayuga-Union Springs Pt. 1 S.H. 8518 Montezuma-Cayuga-Union Springs Pt. 3 Proj. F-1059 (2) (3) | 1.49 | Asp. Conc. Ty. 1A, Optional | 11,000 Plans $10 | 202,000 |
| DIST. No. 4, E. G. H. Youngmann, District Engineer, Barge Canal Terminal, Rochester, N. Y. | | | | | | |
| Genesee | FAC 53-20 | Batavia City: Main Street West Proj. U-706(3), Cont. 2 | 0.86 | Traffic Signal System | $800 Plans $10 | $14,000 |
| Monroe | LOSP 53-5 | Lake Ontario State Parkway Sect. D | 3.07 | Grad. & F.C. Gravel = 2.59 Mi. Misc. Wk. = 0.48 Mi. | 50,000 Plans $15 | 906,000 |
| DIST. No. 10, M. E. Goul, District Engineer, Montauk Highway, Babylon, L. I., N. Y. | | | | | | |
| Bronx | FACBE 53-3 | Cross Bronx Expressway Cont. 8B Proj. UI-1084(10) | 0.46 | 9" Cem. Conc. Pavt. 2 @ 36' Wide Hy. Sep. Steel Plate Girder 82.5' Viaduct Pl. Gird. and I-Beam 1396' Hy Sep. Steel Plate Girder 170.6' | 190,000 Plans $100 | 3,243,000 |

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: October 29, 1953

## Lake Onondaga West Shore Development

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on October 29, 1953 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE LAKE ONONDAGA WEST SHORE DEVELOPMENT, HIAWATHA BOULEVARD TO ROUTE 18 CITY OF SYRACUSE AND TOWNSHIP OF GEDDES, ONONDAGA COUNTY WHICH CONSTITUTES CONTRACT NO. SPEC. SM-60

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. William Robinson, District Engineer, 301 East Water Street, Syracuse, New York.
(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City, New York.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $54,375.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,719.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. Tallamy
SUPERINTENDENT OF PUBLIC WORKS

# OFFICIAL PROPOSALS

Bids: November 19, 1953

## Furnishing Material and Constructing Railroad Avenue Extension No. 2 to the Albany-Schenectady Road Sewer District Colonie, New York

Sealed proposals will be received at the office of the Town Board of the Town of Colonie, New York at the Town Hall, Newtonville, New York, on the 19th day of November, 1953 until 7:30 P.M., Eastern Standard Time, for furnishing material and constructing Railroad Avenue Extension No. 2 to the Albany-Schenectady Road Sewer District, and at said office publicly opened and read aloud.

The work will consist of furnishing and installing about 4,200 feet of vitrified pipe sewers; 3,150 feet of 10 inch vitrified pipe sewers, 200 feet of 12 inch vitrified pipe sewers, about 870 feet of 8 inch vitrified pipe sewers; and about 300 feet of 8 and 10 inch cast iron pipe under railroad crossings, and connecting force main with sewage pumping station, additions, manholes, connections to existing sewers, wyes and tees.

The Information for Bidders, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of the Town Clerk, Town Hall, Newtonville, New York and at the office of Keis & Holroyd, Consulting Engineers, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Keis & Holroyd upon payment of $25.00 for each set. Any bidder upon returning such set in good condition will be refunded his payment and any non-bidder upon so returning such set within 30 days will be refunded $20.00.

The Town Board, Colonie, New York, reserves the right to waive any informalities in, or to reject any, or all bids.

A Certified check made payable to the order of the Supervisor of the Town of Colonie, New York, in the amount of five per centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will within 5 days thereafter execute such contract and furnish a satisfactory performance bond. On failure to do so he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Town Board of the Town of Colonie, New York, in the amount of the contract, and having as surety thereon such surety company or companies as are acceptable to the Town Board of Colonie, New York.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

Award of contract is subject to approval of project by the New York State Department of Audit and Control.

HAROLD R. McCABE, Town Clerk

Bids: November 10, 1953

## Overpass Extension

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

RT. 29 (1927) U.S. 22 (1953), SECTIONS 1-D & 4-E
OVERPASS EXTENSION AT BLOY STREET

Route 29 (1927) Route U.S. 22 (1953), Sections 1-D & 4-E, Overpass Extension at Bloy Street, Hillside Township, and Island Closings at Mountainside, Union County. Length of project 1.266 miles. The principal items of construction are estimated:

- 9,610 cu. yds. Roadway Excavation-Unclassified
- 583 sq. yds. 8" Macadam Base Course
- 583 sq. yds. Pavement Type MA-BC-2, 3" thick
- 4,798 sq. yds. 10" Rein. Concrete Pavement surface
- 4,502 lin. ft. White Concrete Vertical Curb
- 6,374 lin. ft. White Concrete Sloping Curb

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, November 10, 1953, at eleven o'clock (11:00 A.M. EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the pre-qualification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: November 12, 1953

## Miscellaneous Cable for Holland Tunnel

THE PORT OF NEW YORK AUTHORITY
56,800 FEET OF MISCELLANEOUS CABLE FOR HOLLAND TUNNEL

Sealed proposals for supplying 56,800 feet of miscellaneous cable for the Holland Tunnel will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 11:00 A.M. (E.S.T.) Thursday, November 12, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Bids: November 9, 1953

## Construction of Water Storage Reservoir

WATER RESERVOIR
WINCHESTER, VA.

1. Sealed proposals for the construction of Contract I, WATER STORAGE RESERVOIR in Winchester, Virginia, will be received by the Common Council in Council Chambers, City Hall, Winchester, Va., until 2:00 o'clock P.M. on Nov. 9, 1953, and there publicly opened and read immediately thereafter.
2. The work will consist of providing all labor, materials, equipment and incidentals required for the construction of a 3 million gallon steel water reservoir on foundation prepared by others.
3. Plans, specifications, bidding and contract documents may be examined at the office of the Consulting Engineers, Alexander Potter Associates, 50 Church Street, New York, N. Y., or at the office of the City Manager, City Hall, Winchester, Va., and there obtained upon deposit of Twenty Five Dollars ($25.00). Full refund will be made to actual bidders for return of one (1) set in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets in good condition, within the same period, will be fifty (50) per cent of the deposit.
4. All proposals must be on the form contained in the Contract and Specifications.
5. Contractors, whether resident or non-resident in Virginia will be required to show evidence of a certificate of registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000.00 or more.
6. All bids must be accompanied by a certified check or acceptable bidder's bond in an amount of not less than Five Per Cent (5%) of the amount of the bid made payable to the City Treasurer, City of Winchester, Va. Said checks will be returned to the unsuccessful bidders within fifteen (15) days after opening of bids.
7. The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the contract and upon payment of all persons supplying labor and furnishing materials on the construction of the work.
8. No bidder may withdraw his bid within thirty (30) days after actual date of opening thereof.
9. The Common Council at Winchester, Va. reserves the right to reject any or all bids and to waive any informality in the bid.

DATED Oct. 22, 1953
CITY OF WINCHESTER, VIRGINIA
By: S. Lee Grant, City Manager

Bids: November 12, 1953

## Installation of Hot Water Supply System

THE PORT OF NEW YORK AUTHORITY
REHABILITATION OF HEATING PLANT AND INSTALLATION OF DOMESTIC HOT WATER SUPPLY SYSTEM
NEW YORK INTERNATIONAL AIRPORT

Sealed proposals for furnishing all labor, material and equipment necessary for the rehabilitation of a Kewaunee Scotch Marine Boiler and the installation of a domestic hot water supply system in Building No. 125 at New York International Airport, Jamaica, N. Y., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 11:00 A.M. (E.S.T.) Thursday, November 12, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Bids: November 17, 1953

## Alterations to Cargo Building No. 1

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
ALTERATIONS TO CARGO BUILDING NO. 1
(WILLIS - ROSE)
CONTRACT NYA-270.008

Sealed proposals for performing alterations to Cargo Building No. 1 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1111, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, November 17, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1111, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

## OFFICIAL PROPOSALS

Bids: November 10, 1953

### *Bridge and Approaches*

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

RT. 44 (1927), SEC. 18, BRIDGE & APPROACHES AT SALEM CANAL
Route 44 (1927) Section 18, Bridge and Approaches at Salem Canal, Lower Penns Neck Township, Salem County. Length 0.072 miles. The principal items of work are:

Estimated:

Roadway Items

324 cu. yds. Roadway Excavation—Earth
1,078 cu. yds. Borrow Excavation
1,172 sq. yds. Macadam Base Course, 8" thick
1,567 sq. yds. Pavement Type MA-BC-2, 3" thick
619 lin. ft. White Concrete Curb

Bridge Items

1,375 cu. yds. Concrete in Structures
205,000 lbs. Structural Steel
60,100 lbs. Reinforcement Steel in Structures
6,160 lin. ft. Timber Piles

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, November 10, 1953, at eleven o'clock (11:00 A.M., EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the pre-qualification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:

STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: November 5, 1953

### *Installation of Oil Fired Space Heater*

THE PORT OF NEW YORK AUTHORITY
OIL FIRED SPACE HEATER
NAVAL INDUSTRIAL RESERVE SHIPYARD
BUILDING NO. 15
PORT NEWARK, N. J.
CONTRACT O & M-189

Sealed proposals for furnishing all labor, material and equipment necessary to install an oil fired space heater in Building No. 15 at the Naval Industrial Reserve Shipyard, Port Newark, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 11:00 A.M. (E.S.T.) Thursday, November 5, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

COMMONWEALTH OF MASSACHUSETTS. Department of Public Works. NOTICE TO CONTRACTORS: Sealed proposals for Contract No. 1, Railroad Grade Crossing Elimination Project at Lincoln Square, City of WORCESTER; consisting of demolition of structures, relocation of Boston & Maine R.R. tracks and improvement of certain streets adjacent thereto will be received at Room 427, 100 Nashua Street, Boston, Mass., until 2:00 P.M. of Tuesday, November 17, 1953 and at that place and time publicly opened and read. Proposal guaranty: $99,000. Charge for plans and proposal forms: $25, amount returnable only to bidders. Complete information at said office; plans on display at District offices. Minimum wage and dump-truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work.

By: JOHN A. VOLPE,
Commissioner of Public Works.

### U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation, Sealed bids (Invitation No. DS-4069) will be received at Denver, Colorado, until December 3, 1953, for furnishing three (3) 20,000/26,667/33,333-kva, 220,000- to 115,000-volt, single phase, class OA/FA/FA or OA/FA/FOA outdoor autotransformers for Jamestown Substation, Transmission Division, North Dakota, Missouri River Basin Project. Delivery is desired within 540 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

W. A. DEXHEIMER, Commissioner


# Contractors—

## You have made the BID

## You have other jobs to Complete

**The Equipment to use on either a Rental or Purchase basis will be found on these pages. Check them NOW and see the Savings you can make.**

# OFFICIAL PROPOSALS

(Continued from page 101)

Bids: October 29, 1953

### Horace Harding Expressway

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on October 29, 1953 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE HORACE HARDING EXPRESSWAY, SECTION 1, QUEENS BOULEVARD TO PARSONS BOULEVARD, CITY OF NEW YORK, QUEENS COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-59

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York

(b) M. E. Goul, District Engineer, Montauk Highway and Little East Neck Road, Babylon, L. I., New York

(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $18,225.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,412.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

R. D. Tallamy
SUPERINTENDENT OF PUBLIC WORKS

Bids: November 24, 1953

### Dwelling Unit Increment

HOUSING AUTHORITY OF THE CITY OF LOS ANGELES, CALIFORNIA
1401 EAST FIRST STREET
LOS ANGELES 33, CALIFORNIA
FOR PART 2—140 DWELLING UNIT INCREMENT
PUEBO DEL RIO EXTENSION
PUBLIC HOUSING ADMINISTRATION
PROJECT NO. CAL 4-15
LOCATION 53rd STREET, 55th STREET AND LONG BEACH AVENUE
LOS ANGELES, CALIFORNIA

Plans and Specifications
Prepared By
Theodore Criley, Jr. and Henry C. Burge
Architects
510 Knight Way, LaCanada, California
Telephone: SYlvan 0-3202

Invitation for Bids will be published October 16, 1953. Revised Plans and Specifications dated October 16, 1953 and Bidding Documents ready for distribution October 20, 1953.

Bids to be opened 2:15 P.M. (P.S.T.) November 24, 1953.

For further information regarding bidding Telephone ANgelus 2-2121, Extension 55.

# SEARCHLIGHT SECTION

*(Classified Advertising)*

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

**UNDISPLAYED RATE**

$1.50 a Line, minimum 3 lines. To figure advance payment count 5 average words as a line.
*Discount* of 10% is allowed if full payment is made in advance for 4 consecutive insertions.
POSITION WANTED and Individual Selling Opportunity Wanted undisplayed rate is one-half of above rate, payable in advance.
*Box Numbers* in care of our New York, Chicago and San Francisco Offices count as one additional line.
SEND NEW ADVERTISEMENTS to N. Y. office, 330 W. 42nd St., N. Y. 36, for November 12th issue, closing October 30th.

*Replies* are forwarded each day as received at each of the offices mentioned without additional charge.
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

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The advertising rate $17.10 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
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WANTED—BUILDING Construction Estimator —By old established North Jersey Company —Must be experienced with emphasis on Industrial Construction. Must have engineering background and be able to handle the complete estimate. Excellent Salary—Profit Sharing—Opportunity to advance—Age 32-42. P-9232, Engineering News-Record.

ENGINEER—HEAVY Construction—Extensive experience in Highway Bridges—Overpasses —Foundations—Excavation—Water Conditions —Concrete in all phases. Must be able to handle bidding—Cost analysis. Profit Sharing—Fine Opportunity if capable. P-9233, Engineering News-Record.

FOREMAN—SEWER and Water Works. Must be familiar with wellpoint work. Good opportunity for the right party. United Construction Company of Michigan, 520 Houseman Building, Grand Rapids 2, Michigan.

WANTED: EXPERIENCED estimator, engineering background preferable. Must be capable of take-off, pricing, scheduling, etc. Business located in South Dakota. Firm well established, progressive in business since 1930. Salary open. P-9534, Engineering News-Record.

WANTED BY progressive company in North Carolina with very desirable living conditions, draftsman thoroughly experienced in plate, structural and miscellaneous steel work. Please give full data in reply. P-9593, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT for large Middle West General Contractor. Must be able to take complete site management of institutional, industrial and commercial buildings of any size. Permanent connection. Please send full details of education, experience, age and other pertinent information, care of P-9557, Engineering News-Record, 520 No. Michigan Ave., Chicago, Ill.

MIDWEST ENGINEERING firm needs engineers experienced in highway and bridge design for permanent work on urban expressway projects. Reply giving full experience record, personal history and salary wanted. P-9602, Engineering News-Record.

## SELLING OPPORTUNITIES OFFERED

SALES ENGINEERS—Albany, New York and Pittsburgh, Pennsylvania with established national concern selling prefabricated metal products to engineering and construction markets. Position offered is permanent and presents excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Age 24 to 30. SW-8254, Engineering News-Record.

WANTED—SALESMAN to sell Office Trailers to Contractors. Must be experienced in selling to Contractors. Not over 40 years of age. Contact A. V. Williams, Box 145, Baltimore 20, Maryland.

(Continued on the opposite page)


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Permanent positions in California's huge highway program. Wide choice of locations. High-grade professional experience. Open to CE graduates or to non-graduates with 2 years' experience. $376 to start, raise in six months. Positions open at this level only.

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P-9585, Engineering News-Record
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P-9435, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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P-9496, Engineering News-Record
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(Continued from opposite page)

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## POSITIONS WANTED

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STRUCTURAL DRAFTSMAN, 2 years exp. as Mech. Draftsman; 4 years exp. as structural steel detailer; one year (and presently working as structural draftsman and checker (for incoming shop drawings) with structural department of an architectural company. Shall immigrate from Canada to U.S.A. Looking for permanent position with a well known company, preferably in New York City (Manhattan, but ready to go anywhere (North-East) which has possibility of future. In reply please mention salary that can be expected. PW-9661, Engineering News-Record.

FOREIGN WORK desired, complete staff or part. Project Manager, Administrative Manager, Logistics and Fiscal. Engineers in all categories. Superintendents for all phases of construction. All personnel highly qualified, most with "Q" clearance and three to five completed contracts. Available 1 November. PW-9536, Engineering News-Record.

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ENGINEER M.C.E., M.S.C.E. 10 years field, office. Responsible construction position. PW-9579, Engineering News-Record.

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SEEKING POSITION as Parts Manager. Ten Years Equipment Distributor and Contractor experience. Have good knowledge of equipment parts business. Complete resume upon request. PW-9575, Engineering News-Record.

CIVIL—STRUCTURAL engineer, 28, married. BS, MS, license, airplane pilot, experience in highways, teaching, consulting engineers, railroads, process plants. Domestic or foreign. Design or construction. PW-9537, Engineering News-Record.

PROJECT MANAGER—Graduate Civil Engr. 25 yrs. Heavy Const. Experience, mostly Thermal and Hydroelectric. Can be available in February. PW-9596, Engineering News-Record.

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ELECTRICAL ENGINEER, 28, BEE, MBA, PE, NY State. Light & Power designer for commercial, institutional and industrial buildings. Seeks challenging position. PW-9600, Engineering News-Record.

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FS-9519, Engineering News-Record
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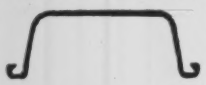

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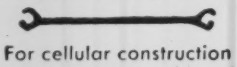

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In seeking the solution to your problem, he can draw on Socony-Vacuum's 87 years of experience, its vast research facilities, its staff of lubrication engineers—largest in the industry. He'll give you individual lubrication schedules—advice on correct application of lubricants—recommend the *right* lubricant for every part of every machine.

So, if a problem has *you* stumped, don't wait—call in your Socony-Vacuum Representative.

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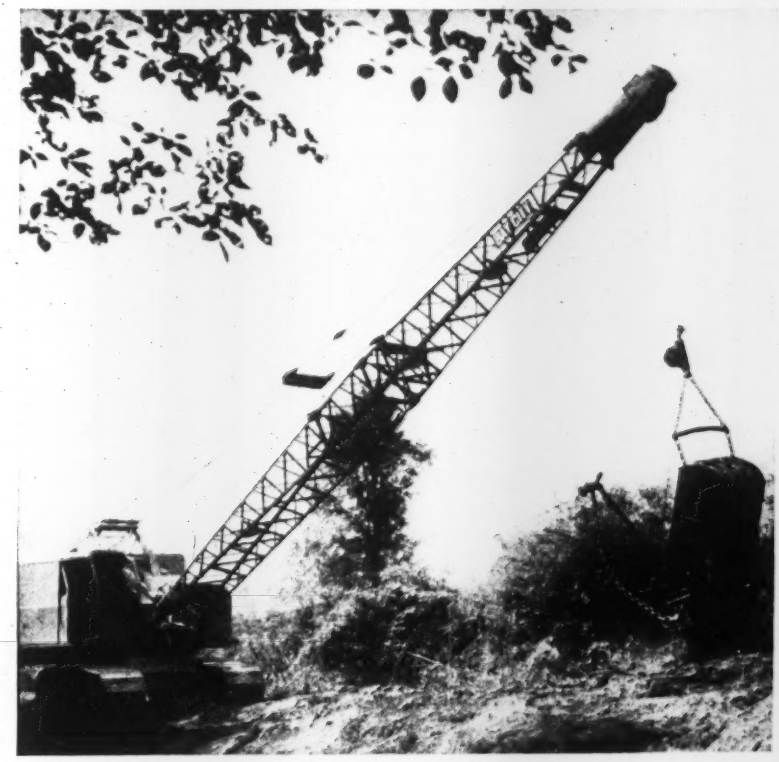


# Bay City unwraps its biggest crawler

## Convertible crane-dragline-clamshell unit features shoe-type clutches, rear-mounted boom hoist

After more than a year of development and field testing, Bay City Shovels, Inc., is now in production of its new Model 700—a convertible crane-dragline-clamshell machine in the 40-ton class.

As a crane, the crawler-mounted Model 700 has a capacity of 23 tons on a 45-ft boom at a 12-ft radius, and will handle boom lengths up to 100 ft for long reach jobs. Dragline and clamshell bucket sizes are determined by the crane capacity at the required operating radius.

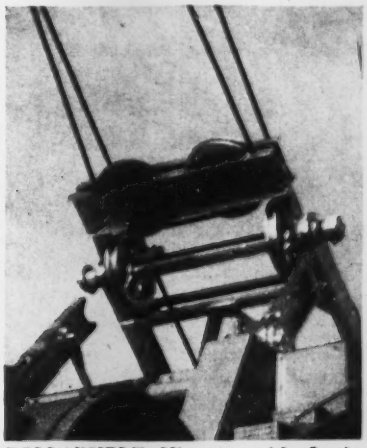
One of the major new features of the machine is the use of internal shoe-type clutches on both swing and main drums. This type of clutch has been used on the swing drums of other Bay City's for some time and is reported to give easier, smoother operation over long periods with little adjustment.

The main drums themselves are straight-barreled and set in tandem. They have grooved lagging and will carry either 470 ft of $\frac{3}{4}$-in. or 385 ft of $\frac{7}{8}$-in. wire rope.

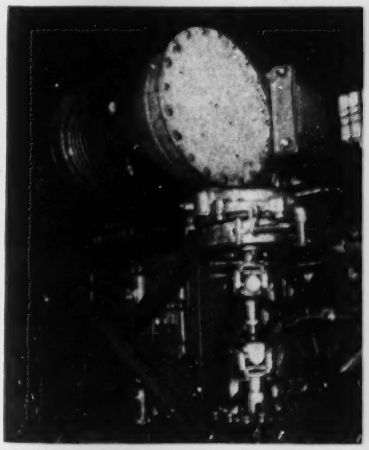
For greater accessibility, space conservation and best cable alignment the independent boom hoist is vertically mounted in the rear of the cab. Of the worm and worm wheel type, the hoist is powered directly from the gear case through clutches giving positive control during raising and lowering. An automatic brake on the hoist's worm shaft provides extra protection when the boom is under load, and an automatic throw-out clutch device prevents the boom from exceeding maximum angle. A collapsible Hi-gantry permits the raising of a 100-ft boom without outside help.

Power requirements are satisfied by a six-cylinder Cummins diesel developing 115 net hp at a governor-controlled 1,300 rpm. This moderate speed is said to prolong engine life and reduce maintenance.

The basic 45-ft crane boom is made up of two equal sections, pin-con-



COLLAPSIBLE Hi-gantry with floating bridle permits raising of booms up to 100 ft long without outside assistance.



VERTICALLY MOUNTED independent boom hoist mounted at the rear of the cab is readily accessible, conserves space.

STRAIGHT-BARRELED main drums are set in tandem; engine is a 115-hp diesel.

# Facts About Your Budget

Ever see a budget you didn't have to s-t-r-e-t-c-h to cover even the "must-have" items on the list? Here's help! You really stretch your budget dollars, make them do more and go farther when you specify "Cleveland" for your trenching equipment. You do more trenching work—better, faster and cheaper—use less equipment—require smaller yearly investment—fewer manhours—smaller payroll—less repair and maintenance—with Clevelands. And their rugged, quality-construction and their proved extra long work-life mean that you *won't* be budgeting for replacement of worn-out equipment for years to come!

## About Cleveland "Model 80"

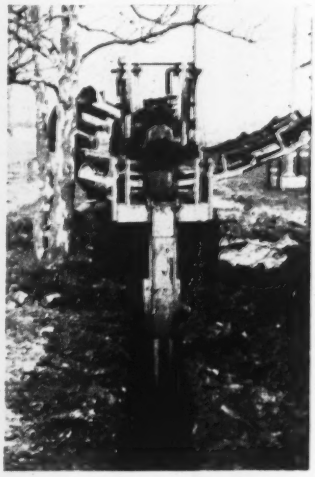
***Backfiller—Tamper—Side Crane***

- *One* machine, *one* man operated does *three* big trench completion jobs: ① lays pipe, ② fills trench, ③ tamps fill—*plus* all types of light side crane work, pulls crossings, loads and unloads pipe, valves, etc.
- Lays pipe safely, smoothly with minimum man power. Over 3,000 lb. capacity at 6 ft.
- Live, telescopic boom, long reach. Sure clutches, smooth brakes.
- Backfills fast and clean from either side of trench—*toward* or *away from* machine. Fits wide range of trench sizes. Easy on lawns, sidewalks, etc. Does a beautiful clean-up job.
- Tamps thoroughly—delivers over 470 ft. lb. blow 42 times per minute—produces maximum practical compaction. Backfills, tamps, travels simultaneously. Travels *parallel* to trench, minimizing traffic interference.

LAYS PIPE . . . . FILLS TRENCH . . . . TAMPS FILL

## About Cleveland "Baby Diggers"

- No specialists—but versatile, performance-proved experts on all types of trenching jobs.
- Most efficient digging element, the wheel, digs all soils, in all weathers.
- Compact, highly maneuverable, easy to work in tightest places, right up to building walls, between obstructions, etc.
- Extremely portable—cover scattered jobs easily—travel at truck trailer speed.
- Better public relations—easy on walks and driveways, no tires to spin and gouge lawns.
- Choice of models—depths from 3½′ to 5½′, widths from 9″ to 24″, digging speeds from 6″ to 29′ per minute, providing *right* speed and power combination for *every* job condition.



*P. S.* Cleveland Quality in design and construction produces more trench—in more places—at less cost.

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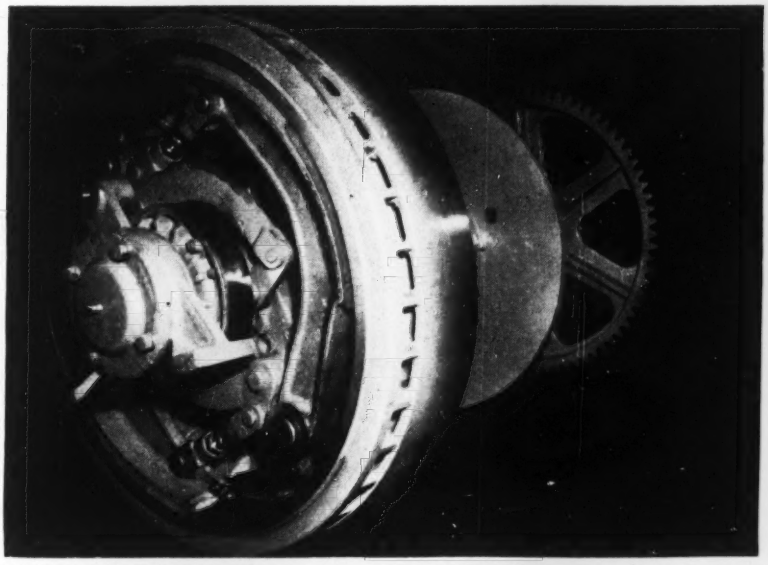


**POWER BOOSTER SHOE** actuated by mechanical linkage provides easy operation of the main drum clutch. Note air cooled drum flange.

nected to provide for the easy installation of 5, 10 or 20-ft center sections. The boom is supported by a cable-suspended floating bridle arranged so that intermediate boom sections may be added without changing the boom hoisting cable. Adjustable jib extensions of 15 and 30 ft are also obtainable.

Crawlers are available in a standard 13-ft length with either 30 or 34-in wide treads and a special length of 15 ft 2-in. with 34-in. treads. Bearing pressures for the standard length crawlers are 9.12 psi for the 30-in. shoes and 8.10 psi for the 34-in. shoes. Bearing pressure of the special length is 7.14 psi.

For transport the machine weight can be reduced to 25 tons by removal of front end attachment, crawlers and counterweight slab.

For the future the company is readying shovel and back hoe attachments for the 74,000-lb Model 700 as well as a modification to be known as Model 70. Bay City Shovels, Inc., 2611 Center St., Bay City, Mich.

## New scraper design introduced

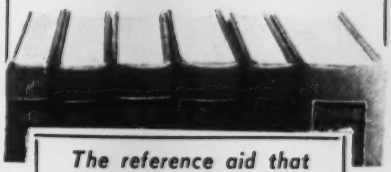
"Boiling bowl" action has been introduced in the Wooldridge scraper line with the production of a new Model OS-152 tractor-drawn scraper. The new unit has capacities of 19 cu yds heaped and 15.2 cu yds struck.

It is said that particular attention to blade angle and bowl curvature has resulted in a scraper that is both faster and easier to load. In addition, it is claimed that rear draft fulcrum leverage transmits power to the blade more efficiently for positive digging with less drain on power reserve.

The scraper has also been designed to speed the dumping operation. The

LOW CENTER OF GRAVITY adds to maneuverability. Tires are flotation type.


**Save time and money on construction jobs**



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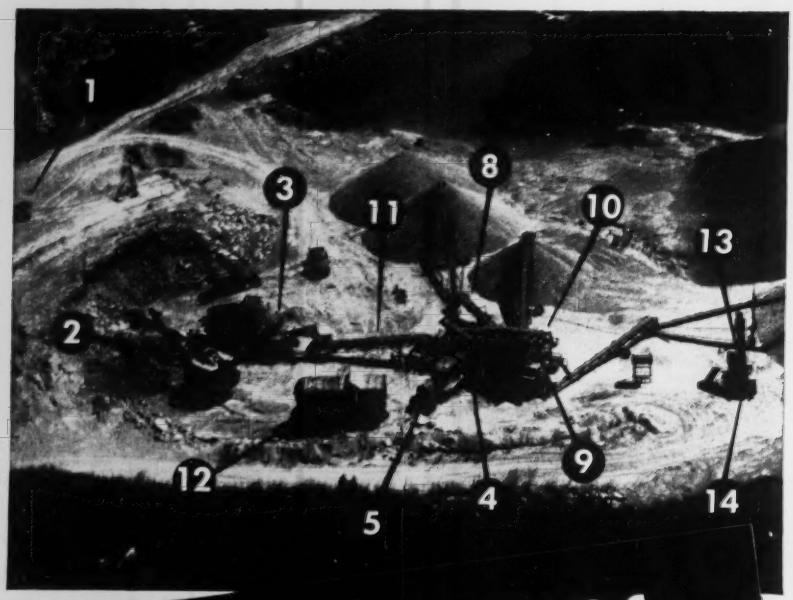


TWIN DISC

# 14 Drives in action!

Typical example of powered equipment in modern industry is Stoneridge Limestone Company's aggregates plant near Rochelle, Ill. And typical example of Twin Disc's *complete range* of Friction and Hydraulic Drives is the aerial photograph above of the Stoneridge operation. Nine of the Twin Disc Drives were built-in by the original equipment manufacturer . . . five were installed by Stoneridge.

Whether built-in or added for extra performance, Twin Disc Drives have the *right design, construction and capacity.* See your Authorized Twin Disc Hydraulic Dealer.

**And here they are . . . count 'em!**

**Twin Disc Spring-Loaded Clutch** on International-powered LeRoi Compressor (1).

**Twin Disc Friction Power Take-Offs** on Cummins-powered Bay City Shovel (2); Caterpillar-powered Universal Jaw Crusher (3) and Universal Hammer Mill (4); and on Minneapolis-Moline-powered Pioneer Roll Crusher (5).

**Twin Disc HYDRO-SHEAVE® Drives** on Stoneridge-built horizontal conveyor (8); Simplicity Vibrating Screen (9); Pioneer Vibrating Screen (10); and Stoneridge-built Conveyor (11).

**Twin Disc Hydraulic Coupling** on Hercules-powered generator plant (12).

**Twin Disc Friction Clutches** (two each) on Nelson P-10 Loader (6, 7; not shown); and Nelson P-11 Loader (13, 14).

TWIN DISC

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois

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75-in. apron opening reportedly allows discharge of the stickiest materials without restriction while the ejector uses natural rolling motion to save time and power.

For greater maneuverability the scraper has a low center of gravity and a 25-in. ground clearance. Tires are of the low-pressure flotation type. Standard tire arrangement is two 21:00 x 24, 16 or ply's on the front and two 24.00 x 25, 24 ply's on the rear. Use of four 21:00 x 24, 20 ply's is optional.

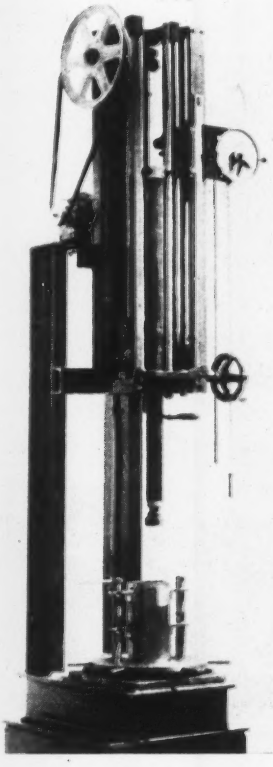
Wheelbase of the 27,750-lb unit is 19 ft 11 in. Overall length is 32 ft 8 in. WOOLDRIDGE MFG. CO., SUNNYVALE, CALIF.

## Compaction test machine is automatic for soils

A new soils compaction machine operates automatically in tests on soils and soil-cement mixtures.

A rammer delivers to the test sample the desired number of blows—up to 100—as preset on a counting mechanism. The length of fall of the rammer can be set to any height from 0 to 30 in. The automatic ramming operation permits the operator to give his full attention to the manual rotation of the sample.

At the completion of a cycle the



they're using
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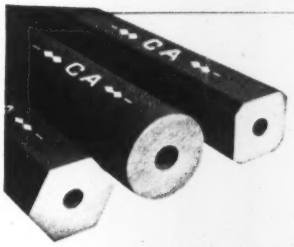
On this job, Crucible Hollow Drill Rods helped move 2,400,000 cubic yards of rock and make 118 major cuts. The largest cut was a huge bite 165 feet deep through solid granite.

That was the one-year record made on the 42 mile long Union Pacific Line Change, between Cheyenne and Dale Creek, Wyoming. To complete the job, largest since driving the famed golden spike joining East to West in 1869, took a combination of skill and teamwork by the Morrison-Knudsen Company . . . plus good equipment. And that's why Crucible Hollow Drill Rods were used.

Made to tool steel standards by the world's largest producer of special purpose steels, Crucible Hollow Drill Rods' *extra* quality means minimum rod breakage and fewer losses of valuable bits. You can be sure of long, uniformly dependable service, lot after lot, when you buy Crucible Hollow Drill Rods.

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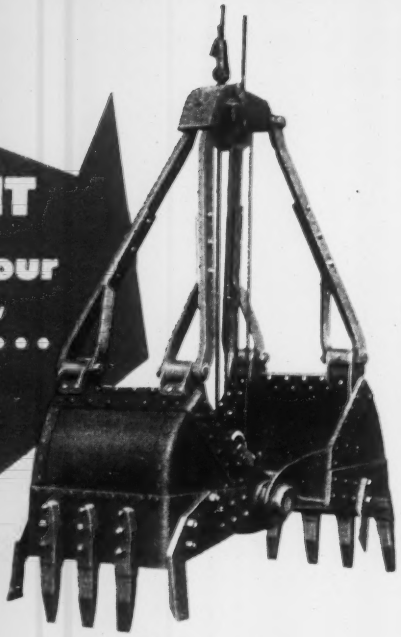

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Side cutting teeth

A bucket of recognized ability becomes a greatly improved "digger" when equipped with teeth of proper type and design.

Owen Buckets are designed to utilize the weight of the bucket to force the teeth into the material when dropped contributing to their reputation as exceptionally efficient digging buckets.

Owen teeth are designed especially for "deep penetration"—teeth that "grasp and hold"—teeth for "breaking down resistance at corners" to aid shell penetration—side teeth "to cut wall clearance" in trench excavation, etc.

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counter is manually returned to zero and the machine is ready for a new sample. If it is desired, the machine can be stopped at any time during the cycle to adjust the sample. Single blows may be struck with the counter disengaged.

The electrically-powered machine is sold under the name "Pantec". MICROCHEMICALS SPECIALTIES CO., 1834 UNIVERSITY AVE., BERKELEY 3, CALIF.

## Thermoplastic insulation eases pipeline backfill

A new granular pipe insulation for underground installations does not require protecting sleeves or sheaths and may be covered over without removing rocks from the backfill.

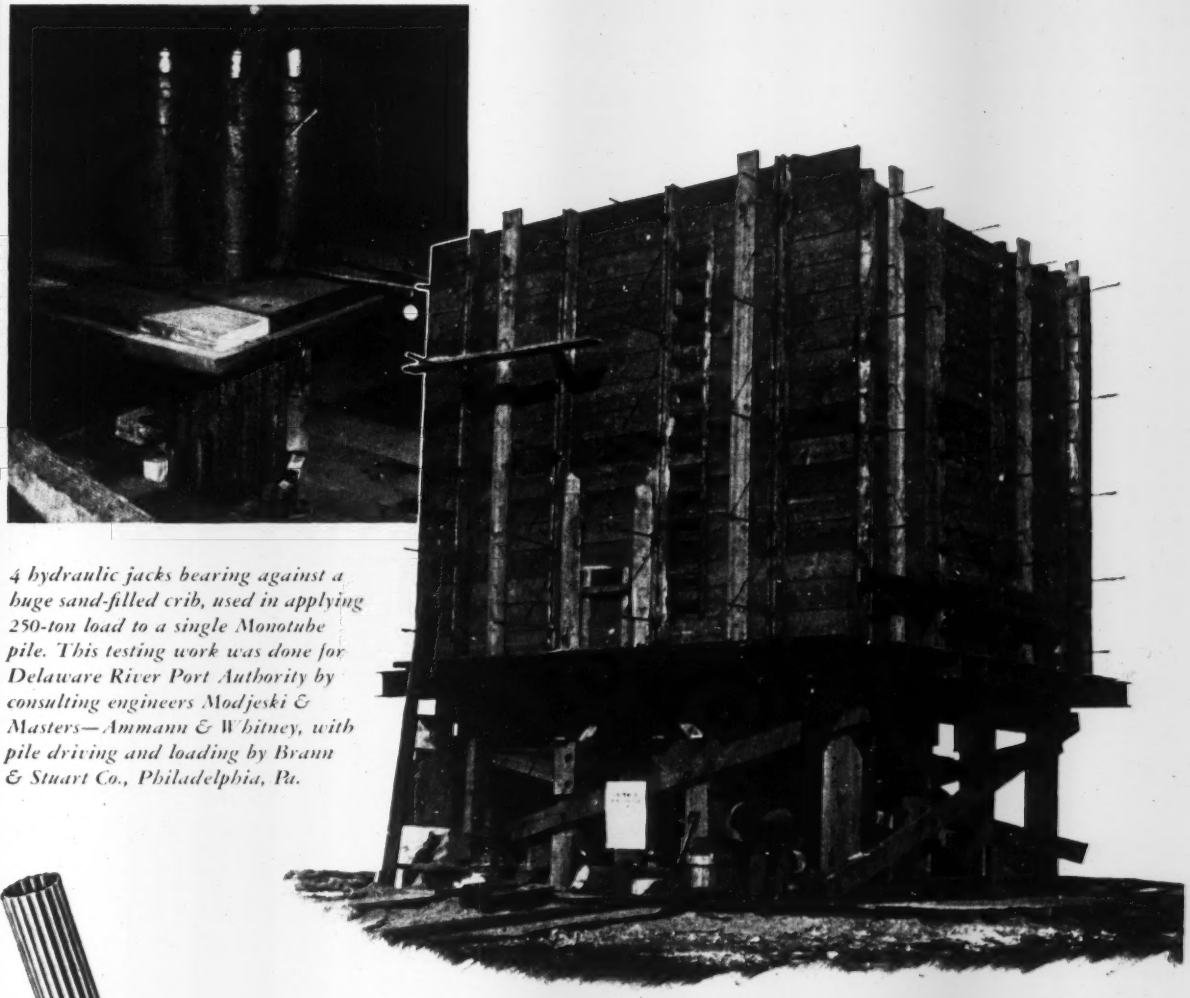
Gilsulate, as the insulation is called, is poured into the trench to surround the pipe to the required depth, tamped and the trench backfilled. Hot steam or other fluid is run through the pipe to complete the job.

The purpose of the hot steam treatment is to plasticize the particles of insulation adjacent to the pipe. These particles adhere to the metal and form a semi-plastic coating that permits the pipe to expand and contract and at the same time acts as a thermal and electrical insulator.

Simultaneously a second zone of insulation is established that is made up of sintered Gilsulate. This zone, like the first, is waterproof and provides thermal insulation.

A third, outer, zone of unconsolidated material affords thermal insulation when dry and is said to have a high load-carrying capacity.

The insulating material is a solidified form of petroleum and therefore is not subject to deterioration or cor-



*4 hydraulic jacks bearing against a huge sand-filled crib, used in applying 250-ton load to a single Monotube pile. This testing work was done for Delaware River Port Authority by consulting engineers Modjeski & Masters—Ammann & Whitney, with pile driving and loading by Brann & Stuart Co., Philadelphia, Pa.*

# 250-TON PROOF

## of Monotube load-bearing performance

IN recent predesign pile loading tests, for a proposed new bridge across the Delaware at Philadelphia, Monotube tapered steel piles again demonstrated remarkable load bearing capacity. A single Monotube pile with an 8" tip and 18" butt was driven 73 feet into a dense stratum of sand and loaded to 250 tons with a net settlement of only ¼ inch. The gross settlement was 31/64 inches and the recovery when the load was released was 21/64 inches.

Monotubes offer many other advantages. Exceptionally strong but light in weight, they drive fast and plumb. There's no need for special rigs or heavy driving equipment. On-the-job extendibility, quick cut-off and easy handling save plenty of dollars, too! But get *all* the facts. Just write to The Union Metal Manufacturing Co., Canton 5, Ohio.

*Monotube* *Foundation Piles*

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rosion in the ground and reportedly assures permanent protection against alkaline ground waters, electrolysis, root attacks and bacterial action. Tests conducted by the Southwest Research Institute and University of Utah indicate that heat loss from a pipe insulated by Gilsulate is only 8 to 11 per cent of the loss that occurs from bare buried pipes.

The new product is supplied in three grades to meet the needs of most hot underground lines. Type A is effective over a temperature range from 220 to 310 F; Type B, from 300 to 385 deg; Type C, from 385 to 520 deg. AMERICAN GILSONITE CO., 248 S. MAIN ST., SALT LAKE CITY 1, UTAH.

## Insulation, vapor barrier provided by modular panels

Metal-faced modular panels used in the construction of field facilities at Thule Air Base in Greenland now are available for commercial building.

The standard panel units consist of a hollow plywood shell, filled with insulation and covered on both faces with a metal "skin" laminated to the plywood. They are 4 in. thick, 2 ft wide and 8, 10 or 12 ft long. Insulation used is 3½-in. thick, 3¼-lb density Owens-Corning Fibreglas. The "U" value of the panel is 0.095. Inside and outside corners and 12-in. wide panels are also available.

The plywood-metal combination is said to produce panels having strength in impact, deflection, compression and bending so that they may be used as load-bearing or curtain walls and partitions, floors and roofs. It is also pointed out that the metal faces provide a moisture barrier on both sides and may be finish painted or left as is.

The manufacturer suggests the use of the panel system in the construction of pumping-stations, control stations, office buildings, etc. It is claimed that the integrated modular system is easy to install and remains unharmed by humid air and water. THE CLEMENTS PANEL CO., 51 E. 42ND ST., NEW YORK 17, N. Y.

## Power steering regulator eliminates oversteering

A new control valve permits truck operators to select the degree of steering assistance from Air-O-Matic power steer booster systems. Such regulation is desirable under conditions where oversteering presents serious hazards. Properly used the device can result in safer vehicle operation.

The control is designed to be mounted on the truck steering column for either right or left hand operation. Degree of assistance is established by moving a lever up or down and does not require the operator to take his eyes from the road or his hands from the steering wheel. AIR-O-MATIC POWER STEER CORP., 24 NOBLE COURT, N. W., CLEVELAND 13, OHIO.

## Pioneer vibrating screens redesigned for heavy duty

Redesigning of the main frame of Pioneer's Mesabi type vibrating screens is said to have resulted in more efficient operation and greater durability for the equipment. Also, the screens are now available in single deck models for scalping and double deck models for scalping or sizing.

Seven sizes of screens are available: 4 ft wide and 10 or 12 ft long; 5 ft wide and 10, 12 or 14 ft long; 6 ft wide and 12 or 14 ft long.

The single deck scalping screen has a ¾-in. punch plate deck while the two-deck scalping screen has a top deck of ½-in. punched plate and bottom deck of wire screen. Both decks of the sizing screen are wire mesh. Standard punched plates have square openings ranging from 2 to 8 in. in ½-in. increments.

The main frame on all the four-foot screens has been redesigned to include an 18-in. car channel reinforced with 8-in. cross beams. The five- and six-foot wide screens have been redesigned with 18-in. I-beams reinforced with 8-in. cross beams. This new structure is said to make the main frame unusually strong, vibration being reduced to a minimum without sacrificing action of the screen pan. Inner bearings on the new screens have also been beefed up. PIONEER ENGINEERING WORKS, 1515 CENTRAL AVE., MINNEAPOLIS 13, MINN.

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# EDITORIALS

## Helpful definition

BEAUTY, it is often said, is in the eye of the beholder—a definition completely lacking as a guide to achieving beauty and one which has been used to justify some rather horrendous artistic endeavors. Something much better was coined last week by E. W. Wendell in a paper before the ASCE convention in which he told of a light, open railing developed under his supervision for the bridges of the New York Thruway. A bridge, he said, should appear "to enjoy the exhilaration of live loads" instead of looking as if it were laboring under its own weight. Mr. Wendell should receive a medal.

## Vigor in Venezuela

THE CHAMBER OF CONSTRUCTION in Caracas, trade association of Venezuelan contractors and engineers, has taken large advertisements, some of full page dimensions, in all local newspapers to call untrue a statement in the July 30 issue of ENGINEERING NEWS-RECORD that there will continue to "be a need for U.S. firms to handle the big jobs" of construction in their country. On the contrary, the Chamber says its contractor members can and should handle all Venezuelan work.

Somewhat taken aback by this overpowering attention to something we have written, we can nevertheless recognize vigor and alertness when we see it. And we cannot but admit admiration at the way the organization defends its members and extols their capabilities. It is, we like to think, just what the Associated General Contractors of America would have done for its members if, in reversed circumstances, they were faced with a statement that help from abroad was "needed" on construction jobs in the U.S.

We hasten to assure our friends in Venezuela that no slight was meant to their abilities as contractors and engineers—which American firms operating down there have reason to know are substantial and growing. In using the word "need" we had in mind the meaning of "opportunity" rather than "requirement". But the latter translation is, of course, possible. And the Chamber of Construction, as we say, merits our admiration for being alert enough to capitalize on it with a "Buy Venezuela" appeal.

Quite naturally, Venezuelan contractors would like to be awarded all of their country's construction jobs—and preferably without the trials and tribulations of competition. But the same may also be said of U.S. contractors with respect to jobs in the United States. The fact is, however, that it is the buyers of construction—government, industries or individuals—who in the final analysis determine who the contractor will be. And the basis of selection is the kinds of service offered, compared with the kinds that are required.

And that, of course, is as it should be if the buyer of construction is to get the best bargain—for the taxpayers in the case of public works or for himself or his client on other construction. Had it not been so in the United States, for example, our first subaqueous tunnels at New York could not have been built so soon nor so well. For it was British engineers and construction men who built them—and not, one can be sure, without U.S. firms maintaining they could do the job just as well.

There have been other instances where foreign firms have won out in competition in the U.S.—and today one continues to see them doing so in the fields of prestressed concrete, of special types of piles, of building products, of engineering instruments and in many others. Even now a Canadian contractor is building one section of the great New York State Thruway. And so we hope our friends in Venezuela will, on reflection, agree, at least, to the propriety of amicable competition among the firms of our two countries and perhaps to its economic justification as well.

We hope, too, that they will agree that it was not unreasonable for ENGINEERING NEWS-RECORD to prepare this special issue, pointing out where in the world opportunities exist for American engineers and construction firms to offer their services, and where these services are being utilized now. That in doing the latter we inadvertently assigned too much credit to U.S. firms for two of Venezuela's big jobs, we sincerely regret. The great highway between Caracas and La Guaira is not being built in its entirety by Morrison-Knudsen as our report seemed to imply. M-K is building the huge twin-bore tunnels, and a French contractor is building the long-span concrete arch bridges, but Venezuelan contractors are responsible for the rest of the job. Also, we apparently were in error in reporting that Smillie and Griffin were the designers of this highway and that Frederick R. Harris, Inc., designed a large new drydock. Both were, more accurately stated, "consultants" on the designs.

The vigor with which the Chamber of Construction declares "that we do not need the aid of American firms to do our own projects", is, as we say, admirable. But having been the vehicle which furnished them with the opportunity thus to promote their wares, ENGINEERING NEWS-RECORD hopes that they will also have enough confidence in their vigor to join in friendly competition for such work in Venezuela as U.S. firms may think they can handle to Venezuela's and their own advantage.

"Buy Venezuelan" is a slogan not without merit, just as is our own "Buy American." But complete adherence to the policy that the slogans express can well deprive both of our countries of many things that they need, or else push costs to uneconomic limits.

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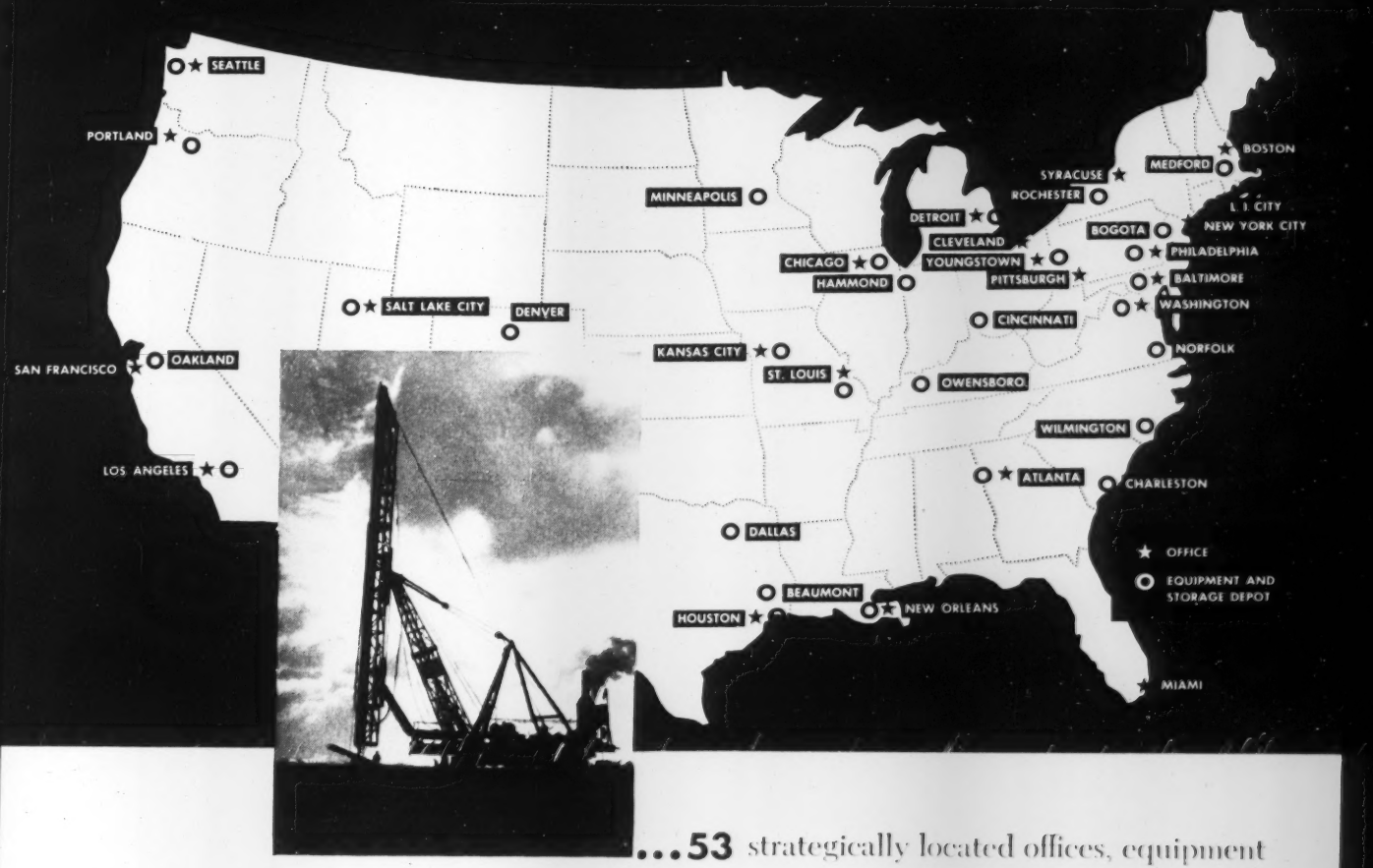


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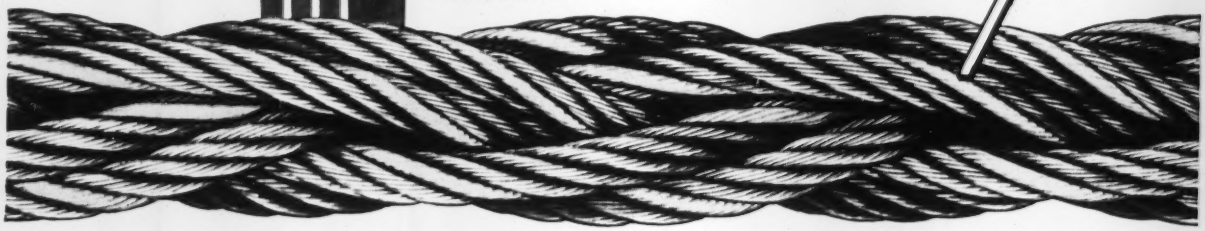

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